

CHALLENGES FACING SUPERFUND AND WASTE CLEANUP EFFORTS FOLLOWING NATURAL DIS- ASTERS

HEARING

BEFORE THE

SUBCOMMITTEE ON SUPERFUND, WASTE
MANAGEMENT, AND REGULATORY OVERSIGHT
OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED FIFTEENTH CONGRESS

FIRST SESSION

DECEMBER 6, 2017

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CHALLENGES FACING SUPERFUND AND WASTE CLEANUP EFFORTS FOLLOWING NATURAL DISASTERS

WEDNESDAY, DECEMBER 6, 2017

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON SUPERFUND, WASTE MANAGEMENT,
AND REGULATORY OVERSIGHT,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:30 p.m. in room 406, Dirksen Senate Building, Hon. Mike Rounds (Chairman of the Subcommittee) presiding.

Present: Senators Rounds, Ernst, Harris, and Booker.

OPENING STATEMENT OF HON. MIKE ROUNDS, U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

Senator ROUNDS. Good afternoon, everyone.

The Environment and Public Works Subcommittee on Superfund, Waste Management, and Regulatory Oversight is meeting today to conduct a hearing titled Challenges Facing Superfund and Waste Cleanup Efforts Following Natural Disasters.

In the past 4 months, three major hurricanes brought record setting flooding and rainfall to Texas, the Gulf region, and the Caribbean. They also threatened the dozens of contaminated Superfund sites located in their path.

Further, in October deadly wildfires scorched over 245,000 acres in California. These wildfires left an estimated \$85 billion of economic damage in their wake. This hearing is especially appropriate today as California again finds itself facing wildfires in southern California.

These ongoing fires have forced tens of thousands of people to evacuate their homes. Natural disasters such as these not only cause loss of life, but also billions of dollars in damage to the economy, infrastructure, and homes.

They also have the potential to expose communities and the environment to hazardous chemicals stemming from contaminated Superfund sites that could be damaged by the storm. The Comprehensive Environmental Response Compensation and Liability Act of 1980, also known as CERCLA, was created to manage hazardous substances and to respond to environmental emergencies, spills, and natural disasters.

As the lead agency, the EPA coordinates cleanups, hazardous waste management, and emergency responses with various other

Federal agencies such as FEMA, the U.S. Army Corps of Engineers, as well as State and local officials.

Throughout Hurricane Harvey, the EPA worked with the Texas Commission on Environmental Quality to secure dozens of Superfund sites in the Houston area and monitored for potential leaks from the sites. Following the hurricane, the EPA used aerial imaging to conduct assessments of these sites, but State and Federal officials faced significant challenges in assessing these sites for testing.

Of the 13 sites the EPA identified as being possibly damaged, only 2 were immediately accessible for sampling. The remaining 11 were inaccessible due to flood waters requiring officials to wait until the waters receded before the sites could be evaluated.

Shortly after Hurricane Harvey, Hurricane Irma threatened 22 current or former National Priority List sites within Florida's southernmost 100 miles. In anticipation of the hurricane, technical staff in the EPA Region 4 office reviewed sites to secure any potential vulnerabilities. Many of these sites remained secure after Irma made landfall.

Two weeks later, as Hurricane Maria hit Puerto Rico and the Virgin Islands as a Category 4 storm, 19 Superfund sites were at risk. Of these, 5 sites in Puerto Rico were deemed especially hazardous to human health and the environment.

Today, nearly 2 and a half months after Hurricane Maria made landfall, the relief and remediation effort in Puerto Rico is ongoing.

In addition to these deadly hurricanes, throughout the month of October, California experienced some of the deadliest wildfires in its history. These wildfires necessitated a Federal cleanup effort that involved hundreds of EPA staff and weeks-long efforts to remove thousands of hazardous waste products—largely consisting of household chemical products—from the area.

Today this Subcommittee will conduct a review of the response, remediation and recovery challenges faced by States and public officials tasked with securing Superfund sites and managing waste debris in the aftermath of these natural disasters. Our goal today is to conduct oversight of the agency coordination among Federal, State, and local officials following these destructive events.

We will also hear about the preparations made to secure Superfund sites in advance of these natural disasters occurring and hear suggestions on how the planning and preparation for natural disasters can be improved.

In general, CERCLA provides substantial discretion to the EPA to expand requirements for disaster planning and post-disaster response. While CERCLA does provide the EPA with flexibility in disaster planning and remedial actions, there are few statutory requirements for proactive disaster planning and response.

I am hopeful that today's hearing will provide suggestions for improvement to disaster planning and post-disaster response so we can make certain that in the event of a natural disaster, these sites remain secure and pose no threat to the surrounding communities and environment.

I would like to thank our witnesses for being here today, and I look forward to hearing your testimonies.

Now, I would like to recognize Senator Harris for her opening statement.

**OPENING STATEMENT OF HON. KAMALA HARRIS,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator HARRIS. Thank you, Mr. Chairman, and for your thoughtful remarks about California and the devastation we experienced because of the wildfires.

There are many Boys and Girls Clubs in California, but there is one—the Harbor Gateway Boys and Girls Club in Los Angeles—that is a little different. That is because it is right near the Del Amo Montrose Superfund site.

Literally less than 5 feet away from where kids play, there are two underground Superfund sites filled with the chemical DDT and old tire rubber which combines to form a toxic sludge. Every day there are kids playing at this Boys and Girls Club, and many have no idea that they are right next to these toxins.

That is just wrong. When you are a kid, you should be having fun, not worrying about cancer causing toxins.

Unfortunately, the Harbor Gateway Boys and Girls Club is not the only place in my State where vulnerable Californians are exposed to dangerous chemicals. In 2015 an EPA analysis found that many communities in California, especially in southeast Los Angeles County, the Inland Empire, and the San Joaquin Valley, are among the most at risk neighborhoods in the nation. They are at risk due to their proximity to landfills, refineries, rail yards, and other polluting facilities.

Many of the Californians in these high risk areas are people of color, Black, Latino, and Asian people who face heavy burdens from air pollution, traffic congestion, lead paint, hazardous waste sites, and yes, Superfund sites.

For example, Watts, California, is one of the most polluted areas in the State. It is only about 20 miles from Brentwood, but life expectancy in Watts is nearly 12 years lower than in Brentwood. That is what we are talking about when we talk about the impact of pollutants on public health and vulnerable communities.

Communities were suffering even before the wildfires and hurricanes. These disasters made a bad environmental crisis even worse. As of yesterday Governor Brown declared another state of emergency for three wildfires, the Thomas, Creek, and Rye Fires in the counties of Los Angeles and Ventura.

This natural disaster has thus far burned more than 83,000 acres, destroying at least 200 structures and forced the evacuation of over 27,000 nearby residents. Thankfully, our firefighters are responding as quickly as possible, and the Federal Government should do everything we can to assist the victims.

This comes on the heels of my visit with Senator Feinstein and Governor Brown to Sonoma and Napa Counties on October 14 to observe a series of wildfires that ultimately burned nearly 245,000 acres, destroyed 8,900 structures, and claimed the lives of 43 human beings.

Hurricanes have devastated Florida, Texas, Puerto Rico, and the U.S. Virgin Islands. I saw this devastation first hand when I visited Puerto Rico and the U.S. Virgin Islands with Senators Mur-

kowski, Carper, Franken, Risch, and Kennedy on November 5 as people struggled to rebuild and put their lives back together.

On top of that, because of these disasters, contaminants have spread, communities are still dealing with damage, debris, waste, and destruction. For example, after the California wildfire, hazardous waste such as Freon chemicals, batteries, and asbestos fibers—which could become airborne—were scattered everywhere.

After Hurricane Harvey the EPA reported that a dangerous chemical—a chemical linked to cancer and birth defects—may have washed downriver from the San Jacinto River waste pits in Houston. In Puerto Rico, they are facing a humanitarian crisis. Only 50 percent of the island has power. There is a lack of food and clean water, and disease is spreading due to unsanitary conditions.

A recent study linked wildfire smoke exposure to respiratory issues and asthma. Asthma was a severe problem due to pollution but increased dramatically for folks breathing smoke from the wildfires.

Families in the California Central Valley have been sending their kids to the ER for asthma attacks 3 to 4 times a year or more. That was before the wildfire pumped soot into the sky.

Children across the Central Valley in California are choking on the very air they breathe. They will grow to adulthood certainly, as we are hearing, with lung disease. Our job is to protect people, and frankly, we are failing.

We must and we can do better. Because this is about health and safety of our children, our families, and our communities, and while our most vulnerable communities may be the hardest hit, let us not forget that clean air and clean water are universal needs. Whether you live in a red State or a blue State, none of us want the water coming out of the tap to be brown.

Today we have a chance to hear from folks on the ground. This is an opportunity to learn how we can do a better job of cleaning up these sites and protecting the health of the American people and the environment in which we live.

Thank you, and thank you, Mr. Chairman.

Senator ROUNDS. Thank you, Senator Harris.

Our witnesses joining us today are Mr. Bryan W. Shaw, Chairman, Texas Commission on Environmental Quality; and Mr. Tracy Hester, Professor, University of Houston Law Center.

Now I would like to yield to Senator Harris to introduce our third witness.

Senator HARRIS. Thank you, Chairman Rounds.

It is my great honor to introduce one of our witnesses today, Matt Rodriguez, Secretary of the California Environmental Protection Agency. He was the Chief Assistant Attorney General for the Justice Department's Public Rights Division in 2008 shortly after Jerry Brown won election as Attorney General.

He supervised the land law, environmental law, natural resources law, consumer law, civil rights enforcement, antitrust, and corporate fraud sections of the office.

During his tenure, he worked to make our community safer by enforcing hazardous waste disposal laws and regulations protecting groundwater from underground storage tanks and the leaks of those tanks.

Secretary Rodriguez also oversaw the legal team that defended the State's greenhouse gas rules and against challenges. This was a fight for the right of Californians to combat climate change, and Matt played a critical role of leadership.

Prior to heading the California EPA, Secretary Rodriguez served briefly as Acting Chief Deputy Attorney General while I was the Attorney General of the State of California. During that time and throughout his career, I have trusted and depended on him for his advice and counsel, especially on environmental issues.

Matt Rodriguez is known throughout California and nationally as being an expert on all these issues and being a dedicated life-long public servant. It is an honor to have you before this Committee.

Thank you.

Senator ROUNDS. Welcome, Mr. Rodriguez.

Now we will turn to our first witness, Mr. Bryan Shaw, for 5 minutes.

Mr. Shaw, you may begin.

**STATEMENT OF BRYAN W. SHAW, CHAIRMAN,
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

Mr. SHAW. Thank you, Mr. Chairman, Ranking Member Harris, and members of the Subcommittee. Good morning, and thank you for the chance to visit with you about the Texas Commission on Environmental Quality and our response to Hurricane Harvey.

My name is Bryan Shaw, and I am the Chairman of the Texas Commission on Environmental Quality. My agency's mission is to protect our State's public health and natural resources by ensuring that the air and water are clean and that waste is disposed of safely. Fulfilling this mission is critical during and after natural disasters.

With the challenges we face with this and other issues in the State, it continues to be critical that we coordinate with local, State, and Federal officials to address the human and environmental impacts of Hurricane Harvey and its aftermath.

The cooperation between agencies during the hurricane response highlighted how well the EPA and the States can work together. The hurricane response and recovery efforts provided a direct opportunity to put into practice key elements of the Environmental Council of the States' Cooperative Federalism 2.0 effort which is designed to improve the relationship between the EPA, and State and regulatory agencies.

The TCEQ, EPA Region 6, and EPA headquarters all worked together efficiently and cooperatively during this time to quickly address the many issues that resulted from Hurricane Harvey. The TCEQ continues to be involved in multiple response and recovery efforts, including efforts related to debris management and Superfund sites.

Talking about some of the debris management, specifically construction and demolition debris associated with Hurricane Harvey and the recovery, presents a potential health risk as it can harbor mold, bacteria, viruses, rodents, and mosquitoes. Construction debris can also contain household hazardous chemicals, such as pesticides or cleaners stored in the home. Proper management of con-

struction debris is imperative to reduce exposure to these potential infectious agents and harmful wastes.

The first step is to rapidly remove the material from the houses, especially if it has been wet from waste from flood waters, as those are always contaminated with microorganisms. Getting them out quickly helps to prevent growth and spread of mold, bacteria, and viruses indoors.

Once out of the house, it becomes critically important to quickly move the construction and demolition debris from curbs to temporary debris management sites. This helps to reduce public exposure to these wastes and the vectors associated with those piles of waste at the curb. Once at a temporary site, it is crucial to dispose of materials and hazardous wastes properly, as well as getting rid of construction debris materials in a way that is environmentally protective either through recycling or proposal disposal in a lined, permitted landfill.

The TCEQ is actively working with local governments on siting and approving those temporary sites in a quick and expeditious but safe manner. We have permitted about 208 of those since the hurricane went through, 90 of which are still active. Those typically are operating 24 hours a day to facilitate getting those materials off the curb so we can get those communities healthy as well getting folks back into their homes in a safe place to live.

Our staff worked continuously to ensure we are inspecting for both environmental as well as fire protection purposes in the management of those temporary sites. So far our best estimate is about 25 million cubic yards with regard to debris associated with Hurricane Harvey that will be need to be disposed of in the State of Texas. About 10.4 million cubic yards, less than half of that, has been removed as of this date. At this point, there is about 1.6 million cubic yards in those temporary sites between the curb and in their final disposition in landfills.

We have efforts on our Web site to make sure we work with our local officials and others to ensure that we encourage them about the most efficient and effective methods to deal with those materials so that we do that safely and quickly and can return those communities to a healthy standard we all strive for.

In keeping with Governor Abbott's disaster proclamation, we requested that certain rules be suspended that would hinder, delay, or prevent any necessary actions associated with the response, dealing with debris management, and controlled burns associated with that. The Governor has renewed that declaration, and it will not expire until December 19 unless he extends it further.

We always had the authority to issue temporary permits, authorizations at our municipal landfill sites to allow them, for example, to exceed their permitted threshold in emergency situations on a temporary basis. Those are up to 180 days with a possible 180 day extension. Those would then have to go through either removing that material or a subsequent permitting process to make those permanent.

We worked to try to ensure that the enforcement discretion, as well as the issues we put forward with the Governor asking for exemptions from the rules, that we do not exceed those time frames

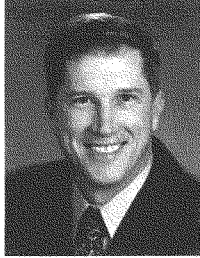
and can move forward in a way that allows for proper disposal quickly of those materials.

I will quickly finish by saying of the Superfund sites that we have in the State, 34 of those are Federal and 17 are State. Mr. Chairman, you mentioned that the key to that is making sure prior to landfall that we secure those sites.

This can include making sure storage tanks, vessels, and containers are secured so that they do not wash away, making sure they are secured so that people do not get into them, and ensuring we are taking other protective measures to ensure we minimize the likelihood of offsite contamination associated with those Superfund sites.

I am happy to answer questions as time permits.

[The prepared statement of Mr. Shaw follows:]



Bryan W. Shaw, Ph.D., P.E.

Dr. Bryan W. Shaw of Elgin was appointed to the Texas Commission on Environmental Quality by Gov. Rick Perry on Nov. 1, 2007. The Texas Senate confirmed his appointment on May 5, 2009 and he was appointed chairman on Sept. 10, 2009.

Shaw is an associate professor in the Biological and Agricultural Engineering Department of Texas A&M University (TAMU) with many of his courses focused on air pollution engineering. The majority of his research at TAMU concentrates on air pollution, air pollution abatement, dispersion model development and emission factor development. Shaw was formerly associate director of the Center for Agricultural Air Quality Engineering and Science, and formerly served as Acting Lead Scientist for Air Quality and Special Assistant to the Chief of the U.S. Department of Agriculture Natural Resources Conservation Service.

Shaw served as a member of the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Committee on Integrated Nitrogen, as well as the EPA SAB Environmental Engineering Committee and the Ad Hoc Panel for review of EPA's Risk and Technology Review Assessment Plan. Additionally, he is a member of the U.S. Department of Agriculture–Agricultural Air Quality Task Force. Since his appointment to the TCEQ, Shaw has served on the Texas Environmental Flows Advisory Group and as chair of the Texas Advisory Panel on Federal Environmental Regulations.

Shaw received a bachelor's and master's degree in agricultural engineering from TAMU and a doctorate degree in agricultural engineering from the University of Illinois at Urbana-Champaign.

**Testimony of Texas Commission on Environmental Quality Chairman
Bryan W. Shaw, Ph.D., P.E. to the U.S. Senate Committee on Environment & Public
Works, Subcommittee on Superfund, Waste Management, & Regulatory Oversight**

December 6, 2017

Testimony

Mr. Chairman, Ranking Member Harris, and members of the subcommittee:

Good morning, and thank you for the opportunity to visit with you about the Texas Commission on Environmental Quality's (TCEQ) response to Hurricane Harvey.

My name is Bryan Shaw, and I am the Chairman of the TCEQ. My agency's mission is to protect our state's public health and natural resources by ensuring that the air and water are clean and that waste is disposed of safely. Fulfilling this mission is critical during and after a natural disaster.

I want to communicate that my agency and I recognize the challenges we face as a state and as an agency. The TCEQ continues to coordinate with local, state, and federal officials to address the human health and environmental impacts of Hurricane Harvey and its aftermath. The cooperation between agencies during the hurricane response highlighted how well the EPA and the states can work together.

The hurricane response and recovery efforts provided a direct opportunity to put into practice key elements of the Environmental Council of the States' Cooperative Federalism 2.0 effort.¹ The TCEQ, EPA Region 6, and EPA headquarters all worked together efficiently and cooperatively to quickly address the many issues that resulted from Hurricane Harvey. The TCEQ continues to be involved in multiple response and recovery efforts, including efforts related to debris management and Superfund sites.

¹ <https://www.ecos.org/wp-content/uploads/2017/06/ECOS-Cooperative-Federalism-2.0-June-17-FINAL.pdf>

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Bryan W. Shaw, Ph.D., P.E. to the U.S. Senate Committee on Environment & Public
Works, Subcommittee on Superfund, Waste Management, & Regulatory Oversight**

Debris Management

Construction and demolition debris presents a potential health risk as it can harbor mold, bacteria, viruses, rodents, and mosquitoes. Construction debris can also contain household hazardous wastes, such as pesticides or cleaners. Proper management of construction debris is imperative to reduce exposure to these potential infectious agents and harmful wastes.

The first step is to rapidly move construction debris out of houses, especially if the debris is wet from flood waters, because flood waters are contaminated with microorganisms. This will prevent the growth and spread of mold, bacteria, and viruses indoors. Once out of the house, it is important to quickly move the construction and demolition debris from curbs directly to a landfill or to Temporary Debris Management Sites (TDMS) to reduce public exposure to these wastes. Once at a TDMS, it is crucial to dispose of materials and hazardous wastes properly and as soon as possible through recycling or disposal in a lined, permitted landfill.

The TCEQ is actively working with local governments on siting and approving TDMS locations to help expedite the removal of debris from communities affected by Hurricane Harvey. As of December 1, 2017, the TCEQ has expedited the approval of 208 TDMSs, and 90 of those remain active. Most TDMS locations have been approved within 24 hours or less and are accepting waste seven days a week. These temporary sites are necessary for the purpose of debris staging, separation, and volume reduction prior to final disposition. TCEQ staff are regularly inspecting these sites to ensure the sites are being managed properly, that appropriate fire protection measures are being addressed, and that the debris is being sent off for proper disposal/recycling at permitted facilities.

The estimated total quantity of debris from Hurricane Harvey is 25 million cubic yards (CY), and it is estimated that 10,401,362 CY of debris has been removed. There is an estimated

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1,631,323 CY of debris at the TCEQ-approved TDMSs. We have mapped the locations² of all TDMSs, landfills, and transfer stations, and we are working to assist communities and elected officials with any debris disposal issues they may have. As of December 1, 2017 the TCEQ has conducted approximately 1,499 routine TDMS inspections.

The TCEQ has also posted waste management guidance on our Hurricane Response web page that is aimed at facilitating the expeditious management and removal of debris and hurricane related waste, including debris separation guidance.³ The TCEQ and the EPA also released fact sheets in English, Spanish, and Vietnamese on best practices when dealing with debris in damaged or destroyed homes. In addition, the TCEQ has provided information to the local governments operating the TDMSs regarding the potential to receive reimbursement for proper debris management.

As of December 1, 2017 the TCEQ has granted 29 temporary authorizations upon request to allow regulatory flexibility for permitted Municipal Solid Waste (MSW) facilities to manage debris expeditiously in the affected areas. Additionally, TCEQ staff called landfill operators to let them know that they can request temporary authorizations to operate 24 hours per day, seven (7) days per week.

In keeping with Governor Greg Abbott's disaster proclamation, the TCEQ requested that the Governor suspend certain state rules that would prevent, hinder, or delay necessary action, including rules related to debris management and controlled burns.⁴ The Governor renewed the

² <https://www.tceq.texas.gov/goto/tdms>

³ <https://www.tceq.texas.gov/home-page/response/hurricanes#waste>

⁴ <https://www.tceq.texas.gov/assets/public/response/hurricanes/suspension-of-tceq-rules-8.28.17.pdf>

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disaster proclamation for Hurricane Harvey, extending this rule suspension until December 19, 2017.⁵

The TCEQ always has the authority to issue temporary authorizations at MSW landfills for a term of not more than 180 days with a possible 180-day extension.⁶ The TCEQ has received and granted many of these requests over the past months. The TCEQ did not suspend rules related to daily cover requirements, but has given temporary authorizations on a case-by-case basis to landfills when requested.

The TCEQ also has enforcement discretion regarding rule or permit violations that we rely upon extensively when responding to natural disasters. Furthermore, there is a defense to enforcement if the violation was caused solely by an act of God or other catastrophe.⁷

For outdoor burns, three TCEQ rules are currently suspended,⁸ but there are still certain requirements for how to conduct a burn to ensure protection of human health and the environment. The preferred method of burning vegetative debris and clean wood waste is trench burners or aboveground air curtain incinerators (ACI). For the temporary use of trench burners or aboveground ACIs in the disposal of debris during emergency cleanup operations in a declared disaster county, after proper notification, the local TCEQ regional office can approve the use of trench burners or aboveground ACIs as long as the agreed to limitations are followed. If trench burners or aboveground ACIs are not available, open burning of vegetative debris and clean wood waste is an option. Other types of debris, i.e., white goods, will need to be recycled or disposed of

⁵ <https://gov.texas.gov/news/post/governor-abbott-extends-disaster-proclamation-for-60-texas-counties>

⁶ 30 Texas Administrative Code § 305.62(k).

⁷ Texas Water Code § 7.251.

⁸ 30 TAC §§ 111.201, 111.203, & 111.217.

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in the appropriate landfill and volume reduction can be achieved by the use of tub grinders. The TCEQ has expedited the processing of the tub grinder approvals required for these operations.

During any disaster response, we learn what works well and what can be improved next time. TCEQ staff has worked hard to inform the local governments of the necessary steps to receive reimbursement from the Federal Emergency Management Agency (FEMA) for proper debris management. One thing we learned while doing so is that FEMA could potentially deny funding for a TDMS without the state historical preservation office's approval. Once we knew that, TCEQ staff gave out the state historical preservation office's form when approving TDMSs. In the future, staff will hand out these forms from day one.

To streamline the process of debris management it would be very beneficial to ask all local governments to have current debris management plans in place. These plans should include provisions for working with the TCEQ and specify FEMA as the approving authority. Pre-identification of TDMS locations and pre-approvals for an adequate number of TDMSs prior to the next disaster should also be included in the plans. This single measure would allow local governments to begin debris removal operation quickly and efficiently.

Superfund Sites

The TCEQ partnered with the EPA to assess Superfund sites in Texas. There are 17 state Superfund sites and 34 federal Superfund sites in the affected areas in Texas. Prior to landfall, TCEQ staff ensured that the Superfund sites in the projected path were secured. This process included securing or removing waste drums and shutting down treatment systems as needed. The TCEQ completed assessments of all the state Superfund sites, and the sites were cleared. Subsequent to the assessments a sheen was observed downgradient of the International Creosoting

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site in Brakes Bayou, which has been contained. The TCEQ will continue to oversee these activities.

The EPA completed assessments of all the federal Superfund sites in the affected area. Follow up was needed on the San Jacinto River Waste Pits Superfund site,⁹ and the EPA has been working with potential responsible parties to follow up on necessary repairs and sampling at the site. The Record of Decision for the site¹⁰ was signed on October 11, 2017, and the EPA's selected remedy of removal of the contaminated material is described in that document.

Conclusion

The TCEQ has a vast amount regulatory guidance, support material, and useful information posted on the Hurricane Harvey response link.¹¹ I do want to thank you for the opportunity to visit with you today. I am available to answer questions you may have.

⁹ <https://www.epa.gov/tx/sjrwtp>

¹⁰ https://www.epa.gov/sites/production/files/2017-10/documents/sjrwtp_rod_final_10_11-2017_signed.pdf

¹¹ <https://www.tceq.texas.gov/response/hurricanes>

Bryan W. Shaw, Ph.D., P.E., *Chairman*
 Toby Baker, *Commissioner*
 Jon Niermann, *Commissioner*
 Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

The Honorable M. Michael Rounds
 U.S. House of Representatives
 Committee on Environment and Public Works
 Chairman, Subcommittee on Superfund, Waste Management, & Regulatory Oversight
 410 Dirksen Senate Office Building
 Washington, DC 20510-6175

The Honorable Kamala D. Harris
 U.S. House of Representatives
 Committee on Environment and Public Works
 Ranking Member, Subcommittee on Superfund, Waste Management, & Regulatory Oversight
 410 Dirksen Senate Office Building
 Washington, DC 20510-6175

RE: Responses to Questions for the Record

Dear Chairman Rounds & Ranking Member Harris:

Thank you for the opportunity to supplement my testimony before the Subcommittee on Superfund, Waste Management, & Regulatory Oversight's hearing entitled, "Challenges Facing Superfund and Waste Cleanup Efforts Following Natural Disasters," on Wednesday, December 6, 2017.

I have reprinted the questions below, with my answers immediately following.

Questions from Senator Carper

1. This hurricane season three major hurricanes have made landfall in the United States. When that happens, we see wide-ranging destructive impacts and risks to the human health, some of which we discussed in the hearing. Obviously, climate change will make things like major hurricanes worse. Do you think that we are better off or worse off ignoring the effects of climate change when it comes to natural disasters?

The Texas Commission on Environmental Quality (TCEQ) follows all state and federal regulations when preparing for and responding to natural disasters.

2. When storms do make landfall, or when communities are at heightened risks for wildfires or other natural disasters, one way to limit the risk of negative impacts is to make communities more resilient to these impacts. However, in August 2017, President Trump

revoked President Obama's 2015 Executive Order on Flood Risk Management. In December 2017, he disbanded the Community Resilience Panel for Buildings and Infrastructure Systems, which helps local officials protect their communities from extreme weather. Do you think that we are better off or worse off taking away tools to help local communities make themselves more resilient to impacts of storms, wildfires, or other natural disasters?

This question may be better answered by other organizations or local governments. However, regarding the TCEQ, we have public participation opportunities for local communities such as advisory groups, public meetings, and stakeholder meetings in our decision-making processes.

3. Congress is currently putting together emergency aid packages to help the communities that have been ravaged by the recent hurricanes and wildfires. I've had a chance to visit Houston after Hurricane Harvey, and to visit Puerto Rico and the U.S. Virgin Islands after their hurricanes, and it's hard to comprehend the scale of destruction that's happened in those places until you see it with your own eyes. Do you think that you are getting the resources you need to adequately recover and rebuild in a way that will reduce future risks? What should we be including in our upcoming appropriations bills to assist you that we're not currently considering?

The TCEQ receives federal funds from the Federal Emergency Management Agency (FEMA). When a major Presidential Disaster Declaration is issued, it is common for FEMA to reimburse 100% of response activity costs incurred during the first 30 days, or use a lower percentage of cost share under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Certain disaster response activities related to Category B "Emergency Protective Measures" may be 100% reimbursable to the TCEQ during the first 30 days. Other eligible reimbursement activities like Category A "Debris Removal" are covered at up to 90% reimbursement from the onset. These activities can be conducted under the FEMA public assistance program or through a request for a Mission Assignment (MA) for Direct Federal Assistance. Under the FEMA public assistance program, the state pays upfront and then seeks reimbursement. When an MA is requested, the federal agency is assigned to conduct activities for the state, meaning there are no upfront costs. For the Category B "Emergency Protective Measures," once the first 30-day period passes, FEMA generally will set the reimbursement rate between 90% and 75%, meaning the state will be responsible for 10% to 25% cost share for activities.

Because of the TCEQ's pre-planning and disaster preparedness, FEMA quickly issued the MA on August 28, 2017. Through this early MA and subsequent amendments, FEMA authorized the TCEQ to receive over \$15 million in Direct Federal Assistance from the U.S. Environmental Protection Agency (EPA), most of which was covered at 90% to 100% reimbursement.

Also, through the FEMA public assistance program, the TCEQ anticipates that most of our direct response costs, which may reach up to \$700,000 for overtime, travel, and materials, will be reimbursable at 90% to 100% for eligible costs. I am unaware of additional assistance needed by TCEQ from federal resources.

4. In June 2014, EPA's then-Office of Solid Waste and Emergency Response (now the Office of Land and Emergency Management) finalized its Climate Change Adaptation and Implementation Plan. Are you familiar with that document, and do you support EPA proactively planning for future expected climate change impacts as part of its mission for protecting public health and the environment?

I am not familiar with this document; however, the TCEQ follows regulations regarding greenhouse gas emissions through the implementation of federal Prevention of Significant Deterioration and Title V Operating air permit programs.

5. Dr. Shaw, in your testimony you mentioned that some storm debris and waste will be burned, either in trench incinerators, air curtain incinerators, or in some instances opening burning. What sorts of air quality monitoring is in place around burn sites? Under what conditions might burning be curtailed or halted? Has TCEQ considered other options for disposing of green vegetative waste, such as mulching and/or composting?

The TCEQ routinely inspects its debris sites, at a minimum every other week until the sites are closed, including those with outdoor burning activities such as open burning, air curtain incinerators, and trench burners. Of the approximately 66 active debris sites remaining, only 21 sites have authorization for burning. The TCEQ employs siting criteria for debris sites so that impact to the surrounding community is minimized. If nuisance conditions are documented by the TCEQ during an inspection, the agency would take appropriate action, which could include ceasing of burning. The TCEQ has considered many options for volume reduction including chipping and grinding of the vegetation. Currently, approximately 29 sites of the 66 active sites have authorization for performing grinding and chipping of the vegetation.

Questions from Senator Whitehouse

6. You have a long record of questioning climate science and oppose limiting greenhouse gas emissions based on economic arguments. In light of the unprecedented damage caused by Hurricane Harvey, do you continue to believe that we should stick our heads in the proverbial tar sands and do nothing to reduce greenhouse gas emissions?

Greenhouse gas emissions are regulated by the TCEQ through the Prevention of Significant Deterioration and Title V Operating air permit programs, both required by the Clean Air Act.

7. Sea levels along the Texas coast are rising six times faster now than they were 100 years ago. In fact, the Texas coast is experiencing some of the fastest sea level rises in the country. Given the risk posed by rising seas to the Texas coast, do you still think it is uneconomic to reduce greenhouse gas emissions?

Greenhouse gas emissions are regulated by the TCEQ through the Prevention of Significant Deterioration and Title V Operating air permit programs, both required by the Clean Air Act.

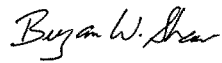
8. Do you have homeowner's insurance? Do you admit that while the chances of your home burning down or flooding are quite small – well, we know the flood risk isn't nearly as

small as it used to be – you still pay for insurance because you want to avoid the risk, however small, of a catastrophic loss? Shouldn't the same logic apply for climate change? Even if you choose to disbelieve the overwhelming scientific evidence, you should still be willing to front the comparatively small costs of weaning the nation off of fossil fuels in exchange for avoiding the trillions of damage that would occur should Galveston, Corpus Christi, Houston, New Orleans, Miami, New York, and many other cities be drowned by rising seas?

The TCEQ follows regulations regarding greenhouse gas emissions through the Prevention of Significant Deterioration and Title V Operating air permit programs, both required by the Clean Air Act. We do not establish or favor fuel sources.

Please do not hesitate to reach out if there are questions.

Sincerely,

A handwritten signature in black ink, reading "Bryan W. Shaw". The signature is written in a cursive, flowing style.

Bryan Shaw, Ph.D., P.E.
Chairman, Texas Commission on Environmental Quality

Senator ROUNDS. Thank you for your testimony, Mr. Shaw. We will now turn to our second witness, Mr. Tracy Hester. Mr. Hester, you may begin.

**STATEMENT OF TRACY HESTER, PROFESSOR,
UNIVERSITY OF HOUSTON LAW CENTER**

Mr. HESTER. Thank you, Mr. Chairman. It is an honor and privilege to be here. I appreciate the opportunity to speak with the Committee.

As you mentioned, my name is Tracy Hester. I teach environmental law at the University of Houston Law Center. Prior to that I spent about 20 years as a practicing environmental lawyer at the law firm of Bracewell LLP.

I appear here in my personal capacity and do not speak on behalf of any of those organizations or any other group I work with.

My testimony centers on ways the system could be tweaked or modified to make CERCLA and Superfund site responses more resilient in the face of disasters.

As you mentioned in your opening statement, EPA already has substantial grant power under CERCLA to do that. Under Section 104, the Federal Government has the capacity to select remediation actions that can encompass and include the capacity to be prepared for disasters and to have excess resilience if they get struck by a hurricane or other weather event.

In addition and probably more on point, Section 106 gives EPA the express power to issue abatement orders that require responsible persons to take steps to prevent the imminent threatened release of a hazardous substance that would cause an imminent substantial endangerment. That gives a built in capacity to respond to disasters that create risks to the community.

As you also mentioned, the statute does not include a broad array of any explicit mentions to any kind of disaster capacity or response. There are some specific areas where the statute could have some modifications made to build in that capacity.

There are three areas. First, make the site selection remedies basically resilient to protect it against release in the first place in the face of disaster. In particular, you could add disaster risk resilience as one of the statutory criteria that EPA must observe when they select remedial action.

There is a long list of them included in Section 9621(b)(1) of the statute. Just add at the end, subsection (H) to make specific reference to disaster recovery and response as part of the remedy selected for a site.

Two, you could direct EPA to do a prospective and proactive review of all health and safety assessments that have built into them emergency response and capacity. Essentially, identify which sites are in the path of a natural disaster or likely to suffer one, and go through that portfolio in advance and identify whether or not they have emergency response plans in place that can deal with the black swan event. If they do not, make sure they get upgraded in advance.

Three, take a look at all the sites as a universe and then review and rank them as to which ones pose the greatest risks. Currently under the statute, there is a mandatory review period that every

site's remedy must be looked at again in 5 years, and make sure it is still protective of human health and the environment.

That review includes what other new data has come into play including changes in weather patterns and risks of disasters. Make that part of the 5 year review cycle. You could also make sure that any State based laws that require disaster resilience in planning become considered as applicable or relevant appropriate requirements under the statute under Section 9621(d).

Last, make some clarifications as to the act of God events. Some of the members of the responsible party community had some questions as to whether or not an event like Harvey or a 500 year or 1,000 year storm was an act of God that created some issues in terms of their responsibility to clean up sites they had already cleaned up.

If there was some clarity on that, you could speed up the response and participation of the parties.

Last, if disaster strikes, build more capacity to respond to it. One of the biggest concerns, at least as I observed as someone who was in Harvey and is still dealing with the aftermath of that, was concerns of the public as to whether or not there had been release from the sites based on what they are hearing second hand from the press and from visual observations.

One way to address that is in addition to the initiatives already undertaken with mobile laboratories and aerial over flights which are enormously useful and great initiatives, there is capacity I think to add capacity for drones and unmanned aerial vehicles that are able to go to the sites much more quickly when the roads are washed out.

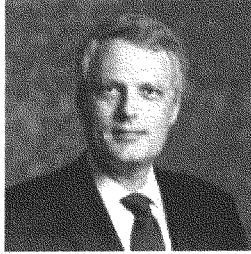
There is discussion already underway at the Office of Enforcement and Compliance Assurance at EPA to have drones that can take samples or do multispectral remote analysis so that you can actually get at least preliminary data to assuage concerns of the public.

In doing so, you probably need to have a pilot program to make sure you have those tested and that they are reliable and ready to put into use when the moment comes.

Bottom line, in conclusion, I want to emphasize the State and the Federal Government stepped up and really built a success story of working together on the front lines in the face of disaster. They really need to be commended for that.

There are no atheists in foxholes; there is no turf in the middle of a natural disaster, but there are ways we could improve the system. I would be glad to answer questions about that if time permits.

[The prepared statement of Mr. Hester follows:]



Tracy Hester, University of Houston Law Center

Professor Hester teaches Environmental Law, emerging technologies, and statutory interpretation courses at the University of Houston Law Center. His research focuses on the innovative application of environmental laws to emerging technologies and risks, such as climate engineering, genetic modification, nanotechnologies, wind and other renewable energy projects, and on novel compliance and liability issues. Professor Hester also writes on the application of environmental criminal laws to disasters and accidental releases. He was elected to the Council of the American Bar Association's Section on Environment, Energy and Resources (SEER) in 2001, named to the American College of Environmental Lawyers in 2014, and was the past chair of the SEER's Congressional Relations Committee and Environmental Enforcement and Crimes Committee before becoming the current co-chair of its new Law Professors Committee.

**TESTIMONY OF PROFESSOR TRACY HESTER
BEFORE THE US SENATE SUBCOMMITTEE ON SUPERFUND,
WASTE MANAGEMENT AND REGULATORY OVERSIGHT
AT THE HEARING ON
CHALLENGES FACING SUPERFUND AND WASTE CLEANUP
EFFORTS FOLLOWING NATURAL DISASTERS**

December 6, 2017

My name is Tracy Hester, and I am a faculty member of the University of Houston Law Center. I would like to thank Chairman Rounds, Senator Harris and the other members of the committee for inviting me to appear today. I am testifying in my individual capacity, and so my statement does not represent the views of the University of Houston Law Center or the University of Houston. I also am of counsel at the law firm of Bracewell LLP, and serve on several environmental non-profit and charitable organizations. My comments do not represent their views either. I request that my full written testimony be included in the record.

In general, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) gives the U.S. Environmental Protection Agency broad powers to deal with the effects of natural disasters on contaminated sites and response actions. In particular, CERCLA section 106 empowers the agency to undertake emergency actions to abate releases or threatened releases of hazardous substances that pose an imminent endangerment to human health and the environment. EPA, for example, can issue section 106 emergency orders to responsible parties to require them to take actions to prevent threatened releases resulting from natural disasters, and the federal government itself obviously can undertake its own removal actions to minimize threatened risks. These

powers under section 106 can also deal with contaminated sites that EPA has not included on the National Priorities List or provided federal funds for a response action.

Under CERCLA's sweeping grant of emergency authority to EPA, the agency has broad discretion to incorporate expanded requirements for disaster planning and responses in its CERCLA remedial action selections and post-disaster responses. To the extent that Congress wants to commit EPA to undertake proactive disaster planning in its remedial action selections and to respond more quickly to disaster impacts at existing CERCLA sites, there are a few logical places to include those requirements explicitly in the statutory text. It should be noted, however, that these suggested revisions pertain to CERCLA and response sites under its jurisdiction. The requirements for hazardous waste generators, transporters, and treatment/storage/disposal facilities fall under the Resource Conservation and Recovery Act (RCRA) and would require wholly different statutory and regulatory revisions, and the regulation of environmental dangers created by on-site storage of hazardous chemicals occurs under other statutes (in particular, the Risk Management Program under section 112(r) of the Clean Air Act).

I. Potential Statutory Revisions.

If Congress wishes to focus EPA's management of natural disaster risks at CERCLA sites, it could deploy statutory language to require the express consideration of resilience and risk minimization from natural disasters in several different portions of the statute.

Remedy selection. CERCLA already includes a statutory preference for remedies that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances or pollutants at the site. 42 USC § 9621(b)(1). It includes a list of factors that EPA must consider when selecting a remedy that attains this standard, and Congress could explicitly direct the agency to select a remedy that minimizes the risk of future releases from natural disasters or extreme weather events. Congress, for example, could add that language as a new subsection (H) after section 9621(b)(1)(G).

In addition to statutory criteria for selection of remedial actions, EPA can also take advantage of existing requirements that CERCLA remedial sites have Health and Safety Plans (HASPs) which include Emergency Response/Contingency Plans. The contingency plans set out the procedures for notifying site personnel about emergency situations, evacuation procedures, identification of site hazards, site control measures, and spill containment. While EPA frequently conducts expedited reviews of CERCLA sites in the projected pathways of major storms and hurricanes, it might specifically review all CERCLA HASPs and contingency plans for sites in areas that might be affected by natural disasters such as hurricanes, tornadoes, and wildfires. This review could extend to other contingency plans and emergency response systems under other environmental statutes such as the Clean Air Act (under the Risk Management Program), RCRA, and the federal Clean Water Act's Spill Prevention, Control and Countermeasure planning program.

Site prioritization and ranking. CERCLA requires EPA to review remedial actions every five years to determine if they remain protective of human health and the environment. 42 USC § 9621(c). Congress could add a brief provision to require EPA to assess whether the selected remedy remains protective in light of current or evolving projections about possible natural disasters or extreme weather events. To the extent that a state already requires such an assessment of potential vulnerability to natural disasters in its cleanup programs or other environmental permitting, Congress could also specify that such state rules would constitute an applicable or appropriate and relevant requirement that EPA must satisfy in selecting a remedy. 42 USC § 9621(d)(2)(A)(ii). Along the same lines, while EPA currently considers weather in its Hazard Ranking Scores to identify CERCLA sites and accounts for weather-caused releases when it approves removal actions, the agency could use site-specific risk assessment methodologies and assumptions to prospectively assess exposure risk from stabilized but not-yet fully remediated sites. For example, while the selection of remedial actions may rely on inhalation and ingestion factors derived from remediation goals acceptable for indoor workers, construction workers, and subsistence fishermen, these goals could also use site-specific factors that include site stability during weather events.¹

Clarification of Act of God defense. While this legal issue has not yet surfaced in any enforcement or cost recovery actions after this season's disasters (to my knowledge), uncertainty over the availability of the Act of God defense under 42 USC § 9607(b) could

¹ My thanks and appreciation to Mary Ellen Ternes, of Earth & Water Law LLC in Oklahoma City, for some of the observations and insights in this section.

slow or complicate emergency actions by potentially responsible parties. Congress can clarify that the Act of God defense does not apply to natural disasters (even if unprecedented) that can be reasonably foreseen and mitigated.² Alternatively, EPA has the capacity to include language in its Model Consent Decree for Remedial Designs/Remedial Actions that would accomplish the same purpose through tailored site-by-site agreements over remedial work performed by responsible parties. Congress could use approaches short of actual statutory modifications, such as directions accompanying funding legislation, to direct EPA to develop and include such language in its model RD/RA consent decree.

II. Resources and operational flexibility.

Within its existing authorities, EPA has historically taken proactive steps to anticipate the operational impacts of hurricanes and other predictable weather events on CERCLA sites. For example, on-scene coordinators will routinely assure that wastewater storage lagoons have been pumped down at their CERCLA sites' to provide sufficient space for additional rainfall and that dikes and other stormwater management structures have been shored up before a major storm strikes. This rapid assessment and disaster preparation has typically benefited from a strong and successful working relationship between EPA regional offices and state environmental agencies who jointly respond to

² To some extent, narrow interpretations of CERCLA's Act of God defense in section 107(b) already withhold the defense from persons who could have anticipated a natural disaster or event that caused the hazardous substance release and taken reasonable steps to forestall the release. For an excellent and exhaustive discussion about the limited availability of CERCLA's Act of God defense, see C. Villa, *Is "The Act of God" Dead?*, 7:2 WASH. J. ENV. L. & POL'Y 320 (2017).

extreme weather events or other disasters. EPA should continue its programs and efforts in this regard.

Despite these efforts, one of the public's largest concerns about releases from CERCLA sites during disasters is whether EPA and other first responders have the capacity to inspect sites while a disaster is occurring (or immediately afterward). EPA and state agencies have taken large strides to address these concerns through the ASPECT aircraft monitoring program and the PHILIS mobile laboratory initiative, but Congress could help expand these capacities through authorizing and funding a pilot program specifically to enhance first responder technology during disasters. This program could test and confirm the viability of enhanced remote sensing technologies and drone monitoring and sampling methods that would allow quick data collection without jeopardizing emergency response teams.

II. Conclusion.

As storms, hurricanes, and wildfires have become more severe, their impacts on CERCLA sites and hazardous waste facilities will pose a growing concern. EPA has substantial power and discretion under CERCLA, RCRA, and other response authorities to anticipate these dangers and require greater resilience in remedy selections, cleanup implementations, and site investigations after disasters. Congress, nonetheless, can help assure that EPA addresses these concerns through either careful direction to the agency about its regulatory implementation of cleanup requirements and its demands of

responsible parties conducting cleanups. Congress can also provide resources and direction to foster innovative and responsive technologies to bolster its capacity for immediate and accurate investigations and responses at sites in the immediate aftermath of disasters.

Thank you for allowing me to speak at today's hearing. I would be happy to answer any of your questions.

**Senate Committee on Environment and Public Works
Subcommittee on Superfund, Waste Management, and Regulatory Oversight
Hearing entitled, "Challenges Facing Superfund and Waste Cleanup Efforts Following
Natural Disasters"
December 6, 2017
Questions for the Record for Tracy Hester**

Senator Carper:

1. This hurricane season three major hurricanes have made landfall in the United States. When that happens, we see wide-ranging destructive impacts and risks to the human health, some of which we discussed in the hearing. Obviously, climate change will make things like major hurricanes worse. Do you think that we are better off or worse off ignoring the effects of climate change when it comes to natural disasters?

Clearly, we should account for the foreseeable effects of climate change on future severe weather and natural disasters when we decide how to clean up contaminated sites or prevent future releases of hazardous substances. Failure to anticipate changing or increased climate effects only worsens the danger that a selected remedy or prevention strategy will either prove inadequate against future calamities or overprotect against a fading risk.

2. When storms do make landfall, or when communities are at heightened risks for wildfires or other natural disasters, one way to limit the risk of negative impacts is to make communities more resilient to these impacts. However, in August 2017, President Trump revoked President Obama's 2015 Executive Order on Flood Risk Management. In December 2017, he disbanded the Community Resilience Panel for Buildings and Infrastructure Systems, which helps local officials protect their communities from extreme weather. Do you think that we are better off or worse off taking away tools to help local communities make themselves more resilient to impacts of storms, wildfires, or other natural disasters?

I firmly believe that you should include every reasonable risk and contingency in your planning for natural disasters, including potential climate change risks – even if you may have some disagreement among the stakeholders about the degree and pace of climate change.

3. Congress is currently putting together emergency aid packages to help the communities that have been ravaged by the recent hurricanes and wildfires. I've had a chance to visit Houston after Hurricane Harvey, and to visit Puerto Rico and the U.S. Virgin Islands after their hurricanes, and it's hard to comprehend the scale of destruction that's happened in those places until you see it with your own eyes. Do you think that you are getting the resources you need to adequately recover and rebuild in a way that will reduce future risks? What should we be including in our upcoming appropriations bills to assist you that we're not currently considering?

I have no special knowledge or expertise on this issue, other than my personal circumstances of having my home flood during Hurricane Harvey. Based on our own experience, FEMA acted quickly and effectively in reviewing flood damages and getting disbursements to affected parties. That said, other communities may not have received such speedy support, and it also appears that most of the relief monies have gone to immediate mitigation rather than to expanding infrastructure and modifying flood prevention assets to forestall damages in future disasters.

4. In June 2014, EPA's then-Office of Solid Waste and Emergency Response (now the Office of Land and Emergency Management) finalized its Climate Change Adaptation and Implementation Plan. Are you familiar with that document, and do you support EPA proactively planning for future expected climate change impacts as part of its mission for protecting public health and the environment?

I am familiar with that document, and I fully support efforts by EPA (and any other federal agency) to proactively plan for future expected climate change impacts.

5. In many instances, FEMA and other agencies allow for the burning of storm debris and waste, either in trench incinerators, air curtain incinerators, or in some instances opening burning. Do you support this practice? What sorts of air quality monitoring do you believe should be in place around burn sites? Are there any conditions under which you believe burning should be curtailed or halted? How much priority should agencies place on exploring and pursuing other options for disposing of green vegetative waste, such as mulching and/or composting?

I do not know whether widespread open burning of storm debris and waste would create a serious hazard to human health or local affected communities, and if so, whether that risk from burning outweighs the risk of delay in managing enormous quantities of storm wreckage. At the least, agencies should proactively research the feasibility and effectiveness of alternatives to burning (such as mulching and/or composting) now so that responders can have that information available to them before a future disaster strikes.

Senator Whitehouse:

6. Do you believe that greenhouse gas emissions from human activity are driving climate change?

Yes.

7. Please discuss some innovative ways to remove carbon dioxide directly from the atmosphere and suggest some policies the federal government might develop that would incentivize the development of these direct capture technologies.

The removal of carbon dioxide and greenhouse gases from the ambient atmosphere is an enormously important and fast-moving field of research. In short, plans for controlling climate change effects already assume that we will broadly deploy certain types of carbon dioxide removal technology, but those assumptions have not received broad public scrutiny or evaluation of their social impacts.

The leading methods under development to remove carbon dioxide from the ambient atmosphere involve the capture of CO₂ from ambient air by (i) high-power blowers and chemical absorption screens, with the recapture and storage/reuse/disposal of the CO₂ from the screens at a later step; (ii) low power polymer screens that rely on natural winds and moisture swings; (iii) soil conditioning or use of biochar in agricultural operations; (iv) fertilization of certain coastal or ocean waters to enhance plankton growth that would absorb ambient CO₂ and then sequester it in deeper ocean waters; and several other emerging technologies.

The federal government could help incentivize direct air capture technologies in many ways. Most importantly, the government could clearly and directly state that it endorses and supports the development of direct air capture techniques and will help expedite their research and deployment. Second, the government could help collect data on ongoing research and help coordinate the exchange of information among the growing number of researchers and institutions (including international resources). Third, Congress could make sure that the extension of tax credits for carbon capture and sequestration efforts also include direct air capture methods that do not reuse the CO₂ for enhanced oil recovery or permanent disposal (for example, some technologies would use the captured CO₂ to generate carbon-neutral or carbon-negative fuels). And last, the government could provide a framework or guidance to coordinate authorizations, permitting, and environmental impact assessments for direct air capture efforts that require federal action or approval.

For reference, I have attached a draft comprehensive overview of the legal barriers facing negative emissions technologies and direct air capture methods. The overview also offers suggestions for promoting the development and deployment of these technologies in the United States. If requested, I would gladly submit the final version of the article once it completes peer review and is published.

8. When a Superfund site is hit by a natural disaster resulting in increased cleanup costs, is there any legal risk that the company responsible for cleanup may try and pass some of these additional cleanup costs on to taxpayers?

CERCLA allows potentially responsible persons to claim that a release of hazardous substances was caused solely by an Act of God. If they successfully raise this defense, they will have “no liability” under the Act. 42 U.S.C. § 9607(b)(1).

While the federal courts have narrowly interpreted this statutory defense to exclude foreseeable acts of nature such as lightning strikes or predictable flooding, companies facing increased cleanup costs from an unexpected natural disaster could certainly attempt to raise the Act of God shield to liability. If they succeed, the additional costs would be borne by other potentially responsible parties (unless they too successfully raise the defense) or, ultimately, the United States or local governments that choose to clean up the site.

Senator ROUNDS. Thank you for your testimony, Mr. Hester.
We will now turn to our third witness, Secretary Matthew Rodriguez.
Secretary Rodriguez, you may begin.

**STATEMENT OF MATTHEW RODRIGUEZ, SECRETARY,
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY**

Mr. RODRIGUEZ. Thank you very much.

Good afternoon, Chairman Rounds and Senator Harris. It is a pleasure to be able to testify before you today. I will use my testimony today to summarize several points made in my written submittal.

First, and most importantly, I do want to emphasize that California does need Federal resources, and we do need coordination with the Federal Government in order to prepare for our future. It is a future that will see more intense and frequent natural disasters, unfortunately, fueled by changes in our climate.

You well described and I appreciate the understanding in Washington of the disasters that have occurred in California in the last 6 months and those occurring right now. It really has been a test of our working relationship with the Federal Government, but I am pleased to say that we have been working very, very well together.

I have a picture, and I understand Senator Harris was there, but this gives you a sense of the devastation that occurred in the fire in northern California. Thankfully no Superfund sites were affected by this fire.

As you mentioned, Senator Rounds, that does not mean there is not a hazardous waste component to this. In fact, Region 9 has worked with the State to inspect 8,000 burned structures so far. That has led to the removal of 100 tons of hazardous waste and asbestos containing material.

As Dr. Shaw alluded, once hazardous waste has been removed, you still have the much larger task of removing the ash and fire debris and preparing these properties for rebuilding. So far, we have looked at about one-tenth of the properties or removed materials from one-tenth of the properties in the burn area with the northern California fires. That alone has led to a little over 288,000 tons of ash and debris.

Obviously, we have a long way to go before these communities can recover and start rebuilding, but the Federal Government has been a significant partner in this rebuilding exercise.

The threat from natural disasters is only going to be greatly magnified when Superfund sites are in harm's way. In California, this is an especially critical concern because the State has 98 sites on the Superfund National Priorities List, many of them in areas of high risk from earthquakes, flooding, or fires.

This danger is growing as a result of climate change that we have been seeing in California, which we see as a risk multiplier for these natural disasters. We are already seeing impacts from climate change in California. Average temperatures have increased by 1.8 degrees in the past century. Fire seasons are now longer and more devastating as we are experiencing.

The State recently endured a historic 5 year drought which has contributed to the death of 100 million trees in the State which no doubt is contributing to the fire we are experiencing now.

To better understand the extent of the problem we are experiencing in California and how it may affect Superfund sites in the future, we have been mapping out and preparing, as Professor Hester suggested, a list of the Superfund sites that are likely to be affected by future disasters. Here you see a map of areas in high fire zones. The red, orange, and yellow are in high fire zones. You can see a number of Superfund sites are implicated by these maps.

Additionally, we have been looking at sites that could be affected by sea level rise. We recently convened a meeting in the Bay area to look at the effects of sea level rise in the Bay area. Again, you can see there are several significant Superfund sites right around the Bay that would be affected by a sea level rise, coupled with a 100 year storm event. These are areas that would release DDT into the Bay and a number of carcinogens.

We are trying to step up, we're trying to assess the scope of the problems so that we can work with local communities and the Federal Government in the future to respond to these problems. It is going to require planning on our part and in coordination with the Federal Government when we see these issues.

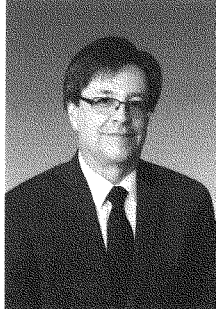
We have some good examples. We have dealt with a significant problem at a mine, the Argonaut Mine site in Jackson, in Calaveras County, which threatened to flood the small town of Jackson with 15 feet of toxic, arsenic laden sludge. We have also worked to rebuild in some of the areas that have been affected by fires in the past to make sure they are more resilient, more fire resistant, and that we are helping those communities to respond to any future fires in those areas. Again, Federal funding was significant in those areas.

That very briefly describes the scope of the problem we have in California, what we are doing to be proactive and get ahead of that problem, and work with the Federal Government to plan and address these issues in the future.

As I said, we have had a good working relationship with Region 9 in particular. FEMA has been very helpful to us recently, but we know there will be disasters in the future, and we are trying to get ahead of the curve so we will be prepared to deal with them in the future.

I appreciate the opportunity to speak to you today. I am available to answer any questions you might have.

[The prepared statement of Mr. Rodriguez follows:]



Matthew Rodriguez
California Secretary for Environmental Protection Agency

Matthew Rodriguez was appointed Secretary for Environmental Protection by Governor Edmund G. Brown Jr. in July 2011. As Secretary, Matt oversees six boards, departments and offices within CalEPA, and advises the Governor on environmental policy. Matt comes to CalEPA with over 24 years of environmental experience with the California Department of Justice. Matt received a Bachelor of Arts from UC Berkeley, and a Juris Doctor from UC Hastings College of the Law.

**TESTIMONY OF MATTHEW RODRIQUEZ, SECRETARY, CALIFORNIA ENVIRONMENTAL PROTECTION
AGENCY, BEFORE THE SUBCOMMITTEE ON SUPERFUND, WASTE MANAGEMENT, AND
REGULATORY OVERSIGHT OF THE U.S. SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC
WORKS**

December 6, 2017

Good afternoon Chairman Rounds, Senator Harris and other members of the subcommittee. I thank you for the opportunity to testify before you today on these important issues.

My testimony will discuss the significant devastation caused by the recent Northern California wildfires; the need for federal resources and coordination to aid prevention, cleanup and rebuilding efforts; and how California is preparing for a future with more intense and frequent natural disasters fueled by changes in our climate. I will also highlight an innovative effort California is taking, with federal assistance, to increase the resiliency and sustainability of a rural area in California following a devastating wildfire. The real and growing danger of catastrophic events means that all levels of government must devote more resources and enhance coordination to help address the causes of disasters, limit their devastating impacts, and speed recovery and rebuilding efforts.

Overview of the Northern California Wildfires' Impacts and Disaster Recovery Efforts

In October 2017, California experienced one of the most devastating and deadly wildfires in its history. In Northern California, 43 people were killed and over 8,900 homes, businesses and structures were destroyed, with property losses of more than \$8 billion and counting. The magnitude of the resulting hazardous waste and debris removal operations is also unprecedented for a wildfire. [See attached photos.]

The pace of recovery operations has been extraordinarily quick given the amount of devastation, due to an exceptional commitment of State resources, significant support from the U.S. Environmental Protection Agency, the Federal Emergency Management Agency and the U.S. Army Corps of Engineers, and days, nights and weeks of hard work by dedicated public servants in recovery efforts.

My agency, the California Environmental Protection Agency, has a history of close coordination with U.S. EPA Region IX and other federal agencies following past fire disasters (e.g., 2007 Southern California and Lake Tahoe wildfires, and the 2015 wildfires in Lake and Calaveras Counties). I'll briefly discuss some of our accomplishments and work with our federal partners during the most recent fires and in the seven weeks since the fires stopped burning.

California Air Resources Board Utilizes Federal Resources to Improve Health Information

First, the strong winds that spread the fires so quickly also carried smoke and ash up to 100 miles away, creating hazardous air quality in the San Francisco Bay Area's major population centers. The California Air Resources Board, which is charged with protecting the public from the harmful effects of air pollution, worked with local and federal agencies to quickly expand air quality monitoring and laboratory analysis during and after the fires. This helped us to provide the public, local officials and tribal nations with vital, timely health advisories and information.

Department of Toxic Substances Control and U.S. EPA Remove Hazardous Waste

While, thankfully, no Superfund sites were affected, directly following the fires one of the first steps of the recovery effort was to remove the household and commercial hazardous waste – including paints, cleaners, solvents, oils, batteries, herbicides and pesticides – from the destroyed homes and other properties. The Department of Toxic Substances Control and U.S. EPA have already inspected about 8,000 burned structures for hazardous waste: over 1,000 by the Department and nearly 7,000 by U.S. EPA Region IX. Together, they have removed an estimated 100 tons of hazardous waste and asbestos-containing material. Through extraordinary effort, this phase of the operation is nearly done.

CalRecycle's Technical Expertise Assists in Debris Removal

Once hazardous waste has been removed, crews can begin the much larger task of removing ash and fire debris and preparing the properties for rebuilding. California's Department of Resources Recycling and Recovery, or CalRecycle, has been a leader in developing best practices for solid waste debris management that prioritize worker safety, environmental protection and transparency during operations. They provided our state Office of Emergency Services, FEMA, the U.S. Army Corps of Engineers and the affected local governments with this technical assistance for recovery efforts following the fires.

To date, working in collaboration with the State and local governments, the Corps of Engineers has done the lion's share of the debris removal, clearing and disposing of 288,000 tons of ash and other materials from roughly 880 properties in Sonoma, Napa, Lake, and Mendocino Counties. CalRecycle has conducted more limited removal operations involving properties in Yuba, Butte, and Nevada Counties.

Obviously, we have a long way to go before our communities are rebuilt, but federal government assistance and federal funds are an essential part of helping to recover from this and other disasters.

Superfund Helps to Prevent and Cleanup Threats to Public Health and Safety

The threat from natural disasters can be greatly magnified when Superfund sites are in harm's way. California has 98 sites on Superfund's National Priorities List, many of them in areas at high risk from earthquakes, flooding and sea level rise. One Northern California town in particular stands squarely in the path of potential disaster.

The century-old Argonaut Mine above the rural town of Jackson has left a legacy of arsenic-laden mine tailings in the area. Working in collaboration with the California Department of

Toxic Substances Control, U.S. EPA Region IX used Superfund authorities to clean up contaminated soil at an elementary school and around homes in the area. U.S. EPA also studied a 100-year-old dam that holds back 165,000 cubic yards of the toxic tailings, and found that the dilapidated dam was at risk of a catastrophic failure that could inundate Jackson with 15 feet of contaminated sludge, cause more than \$100 million in damages, and result in the loss of life.

Acting on this information, in 2015, during the months before our winter storm season, the Department moved quickly to construct a water diversion system to avert dam failure in the event of heavy rains, and designed and funded a project to stabilize the dam in the short term. Further, U.S. EPA listed the mine under the Superfund program in September 2016, and will construct a final remedy for the site.

Federal and state officials rely on Superfund to help avert disasters like the Argonaut Mine, so it is important to know how much funding is needed to address those threats and the money available to pay for those costs. To address this need, in 2016 the Governor signed a bill into law (SB 2891) that requires the Department to look ahead each year and forecast the next three years' worth of anticipated cleanup costs at federal and state sites. The most recent report highlighted the importance of federal and state coordination and concludes that funding needs currently exceed available resources.

Addressing Climate Change and Making Communities More Resilient

California is also a leader in the fight against climate change, which we see as a "risk multiplier" for natural disasters. We are already seeing impacts from climate change in California. Average temperatures have increased by about 1.8 degrees (Fahrenheit) over the past century; fire seasons are now longer and more devastating. The state recently endured a historic, five-year drought, which has contributed to the death of over 100 million trees, and some are becoming anxious as this year's rainy season has started out dry. Further, rising sea levels, even small

amounts, put coastal communities at greater risk of inundation during extreme high tides and storm events.

We have begun exploring how to prepare for the effects of sea level rise on the California shoreline, and how we might best mitigate its impact on Superfund and other contaminated sites. Last month, CalEPA hosted a workshop with environmental justice representatives to discuss potential impacts of sea level rise on these sites and how to build better safeguards for them. The goal is to help local communities prepare for, minimize the effects of and respond to, extreme weather events.

We have prepared a map that demonstrates the potential scope of one of these problems. It identifies the areas that are subject to fire hazards, combined with the location of Superfund sites across the state. [See attached map.] As you can see, a large number of Superfund sites are located in or near at-risk areas across the state.

With the very real risks of natural disasters impacting communities across our state, we are working to find creative ways to embed resilience in our natural systems and communities.

For instance, California was one of 13 national winners of the National Disaster Resilience Competition, which is administered by the U.S. Department of Housing and Urban Development. This provided us with funding to implement a project in rural Tuolumne County to support community resilience and forest recovery following the Rim Fire, the third worst fire in the state's history. This fire scorched more than 250,000 acres in and around Yosemite National Park and cost more than \$125 million to fight.

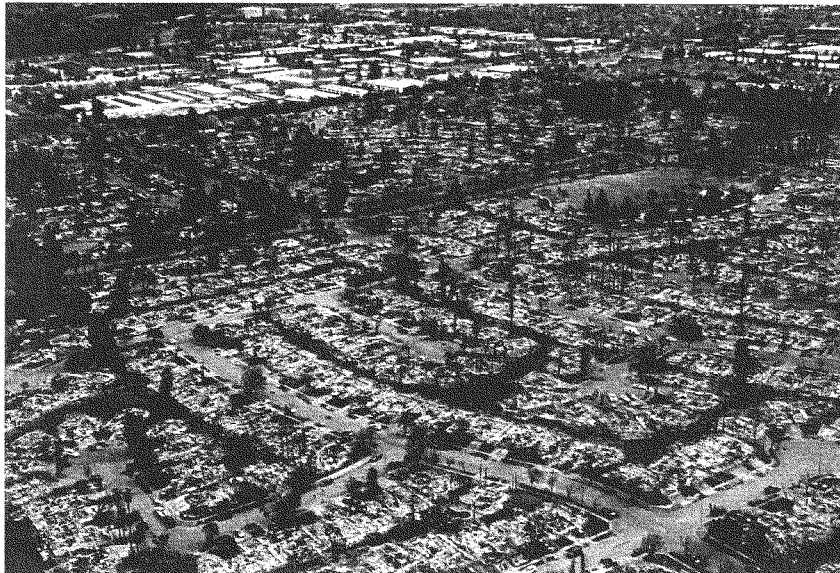
The Community and Watershed Resilience Program, a collaborative effort among county, state and federal agencies, is investing \$70.3 million dollars received through the competition to repair and reforest the burn area to reduce future wildfire risk; use thinned material from the area to produce wood products in a newly constructed biomass facility; and build a modern

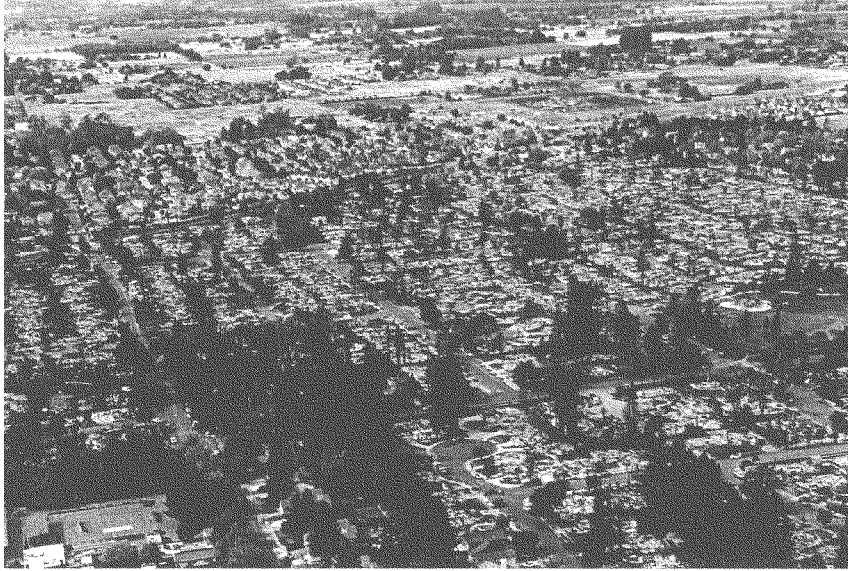
community resilience center to train local residents to work on forest restoration and in the biomass facility. This facility will also act as a safe haven in the event of future disasters and provide this rural community with additional benefits. The Program was stakeholder driven, received bipartisan support, and is a replicable model for other rural areas.

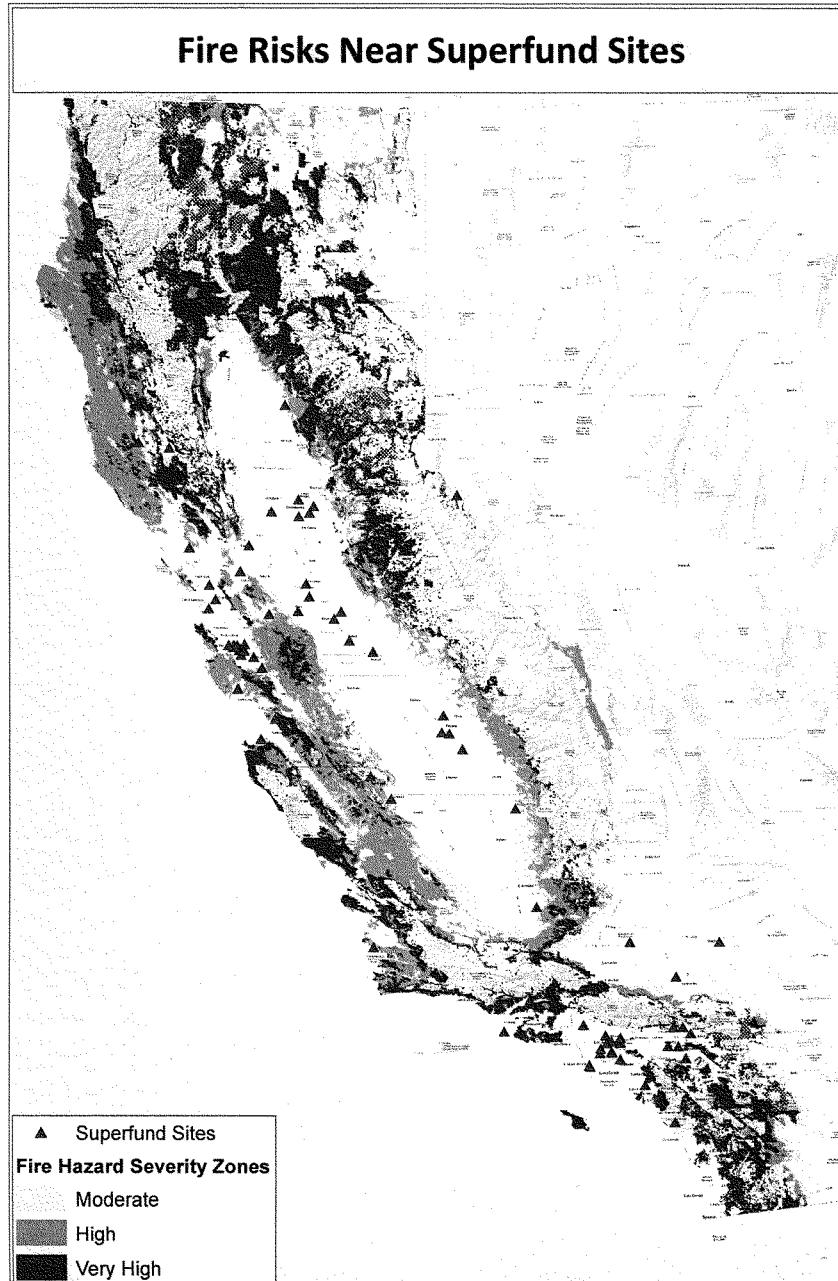
Conclusion

Through my testimony I have tried to demonstrate the real and growing danger that natural disasters represent, the large role that climate change plays in exacerbating these threats, and the unquestioned need for all levels of government to devote more resources and work more collaboratively to address the causes of these disasters and to help speed recovery and sustainable rebuilding efforts.

I am happy to answer any questions that you may have.







**Senate Committee on Environment and Public Works
Subcommittee on Superfund, Waste Management, and Regulatory Oversight
Hearing entitled, "Challenges Facing Superfund and Waste Cleanup Efforts Following
Natural Disasters"
December 6, 2017
Questions for the Record for Matt Rodriguez**

Senator Carper:

1. This hurricane season three major hurricanes have made landfall in the United States. When that happens, we see wide-ranging destructive impacts and risks to the human health, some of which we discussed in the hearing. Obviously, climate change will make things like major hurricanes worse. Do you think that we are better off or worse off ignoring the effects of climate change when it comes to natural disasters?

We cannot ignore the effects of climate change. Climate change magnifies the impact of natural disasters. As ocean water warms, sea ice melts, and precipitation regimes change, we see natural disasters with greater power and impact. We respond to each natural disaster as it occurs, but proactive effort is necessary to reduce the sources of climate change if we mean to limit these catastrophic effects. California combats climate change by reducing greenhouse gas emissions throughout all sectors of the economy. Our actions demonstrate that we can realize emissions reductions and protect our citizens from future climate impacts while we continue to achieve economic growth.

2. When storms do make landfall, or when communities are at heightened risks for wildfires or other natural disasters, one way to limit the risk of negative impacts is to make communities more resilient to these impacts. However, in August 2017, President Trump revoked President Obama's 2015 Executive Order on Flood Risk Management. In December 2017, he disbanded the Community Resilience Panel for Buildings and Infrastructure Systems, which helps local officials protect their communities from extreme weather. Do you think that we are better off or worse off taking away tools to help local communities make themselves more resilient to impacts of storms, wildfires, or other natural disasters?

Local communities need our assistance to become resilient to the impacts of climate change. Throughout California, communities already experience the adverse effects of climate change. Our [Indicators of Climate Change](#) report summarizes the rising sea levels, shifting species ranges, increasing temperatures, diminishing snowpack and other impacts affecting communities, resources, industries, and tourism statewide. Through the [Integrated Climate Adaptation and Resilience Program](#), state agency staff work with local and regional government staff, industry, and non-governmental representatives to identify community needs in embedding resilience in decision-making and action. The State's [Fourth Climate Change Assessment](#) will deliver additional scientific resources to help residents scale community responses to anticipated climate change. The State's Ocean Protection Council also just completed a public input process to finalize [sea level rise guidance](#) for communities to consider when making land use decisions.

Increasing the information available to Californians about potential climate change impacts and sharing best practices to embed resilience in communities is only one step in accomplishing our goals. Communities also need financial resources to help make themselves more resilient to impacts of storms, wildfires, or other natural disasters. To this end, the State will expend \$41 million in natural resource adaptation funding and \$70.3 million for the Community and Watershed Resilience Program in the next five years. Even with this, significant additional resources are necessary to develop and implement resilience plans for communities throughout the state.

3. Congress is currently putting together emergency aid packages to help the communities that have been ravaged by the recent hurricanes and wildfires. I've had a chance to visit Houston after Hurricane Harvey, and to visit Puerto Rico and the U.S. Virgin Islands after their hurricanes, and it's hard to comprehend the scale of destruction that's happened in those places until you see it with your own eyes. Do you think that you are getting the resources you need to adequately recover and rebuild in a way that will reduce future risks? What should we be including in our upcoming appropriations bills to assist you that we're not currently considering?

CalEPA continues to work with federal authorities to secure the resources needed to respond to the immediate needs of fire recovery. The total amount necessary will be determined in the coming months as debris removal efforts conclude. Moreover, recovery costs to help fire-ravaged areas rebuild with embedded resilience will continue for many years. Therefore, we ask that the federal government continue to work with state and local representatives on an on-going basis to help fund recovery efforts and ensure the successful rebuilding of the communities in these areas.

4. In June 2014, EPA's then-Office of Solid Waste and Emergency Response (now the Office of Land and Emergency Management) finalized its Climate Change Adaptation and Implementation Plan. Are you familiar with that document, and do you support EPA proactively planning for future expected climate change impacts as part of its mission for protecting public health and the environment?

Yes, CalEPA is aware of this document and is using it to help better assess and address enhanced threats from climate change to contaminated sites. Further, we support proactive planning for future expected climate change impacts at all levels of government, including EPA. In California, the Department of Toxic Substances Control (DTSC), which oversees cleanups of hazardous waste and hazardous substances, and Department of Resources Recycle and Recovery (CalRecycle), which oversees solid waste cleanups and landfills, have varying levels of authority that allow them to analyze the issues and undertake some of the same actions proposed in the document. As an example, DTSC has the authority to consider sea level rise for sites remediated under several different state programs, including the state superfund law, hazardous waste management program, and voluntary cleanup projects. These departments are also considering

policy changes and potential rulemakings to provide better direction on how ensure that remedies at contaminated site continue to be safe and effective now and in the future.

5. In many instances, FEMA and other agencies allow for the burning of post-disaster debris and waste, either in trench incinerators, air curtain incinerators, or in some instances opening burning. Is California planning to burn any of its post-disaster waste? If you are, what sorts of air quality monitoring do you believe should be in place around burn sites? Are there any conditions under which you believe burning should be curtailed or halted?

It is unlikely that any post-disaster waste would be burned in California. Instead, all hazardous waste and asbestos assessed and removed by DTSC as part of its response to the recent disasters will be manifested and transported to a permitted treatment, storage, and disposal facility for disposition. DTSC does not include the burning of hazardous waste within the disaster area as a disposition option.

Similarly, solid waste removed by CalRecycle, such as ash and other burn debris, will not be burned. Most debris left after a wildfire is not combustible. CalRecycle follows a waste hierarchy that includes reduce, reuse, recycle, and dispose as the order of preference for waste management techniques. Combustion is the last method for handling materials under this hierarchy. When possible, metals and concrete will be recycled while ash and other debris will be sent to appropriately lined and certified landfills for disposal.

Senator Harris:

6. California has played a leading role in environmental protection and natural disaster response. The cleanup of household hazardous waste and debris left from the wildfires that swept across Northern California in October has been notable in both speed and transparency. As fires continue to impact Southern California, the same comprehensive response will again be needed. The impressive response that we have seen in California is in contrast to what we have seen in Puerto Rico and the U.S. Virgin Islands where the environmental and public health impacts of hazardous waste and debris are still being assessed.
 - a. What are some best practices that California and EPA Region 9 have implemented that can be translated to other states/territories and EPA Regions in regards to the assessment and cleanup of hazardous waste and debris after a natural disaster?

California has developed a variety of informational documents to educate and train workers and the public about appropriate debris removal activities. As an example, the State, working with federal and local authorities has produced material that provide an overview of the threats that exist at burned residential structures following a fire, the various cleanup activities that federal and state officials oversee, and a description of the process to make areas ready for residential use following a fire. (Please see attached CalRecycle Operational Guidance; Who's on My

Property; and Butte Fire Debris Clearance). CalRecycle's Operational Guidance details why it is necessary to remove concrete foundations and slabs after unsuppressed structure fires. It also offers detailed guidance for the safe removal of debris and features (chimneys, pools, basements) at residential properties following a fire. CalRecycle periodically updates this material in response to lessons learned from debris removal activities.

DTSC distributes two fact sheets to affected agencies outlining precautions residents should take when returning to structures destroyed by wildfires. (Please see attached Emergency Guidance on Wildfires #1 and #2.) These fact sheets describe the types of hazardous waste homeowners might encounter in the debris, proper handling and management of debris, and methods to contact DTSC. Both fact sheets are available in English and in Spanish. Another fact sheet distributed by DTSC to impacted communities addresses precautions residents should take when entering their destroyed home, including the type of clothing and respiratory protection that should be used to reduce exposure to ash, soot, and other fire decomposition products that may cause irritation and other health effects. (Please see attached FACT SHEET: Protecting Public Health from Home and Building Fire Ash). All three fact sheets are periodically updated to ensure current contact information and reflect lessons learned during debris removal operations.

Senator Whitehouse:

7. Do you believe that climate change is increasing the threat of toxic chemical contamination from Superfund sites as well as industrial facilities that manufacture, store, or transport toxic chemicals?

Yes, climate change impacts including sea level rise, flooding from more dramatic rain events, and fires in forests stricken by drought pose a growing threat to Superfund sites and industrial facilities that generate, store and transport toxic chemicals. The potential impacts vary from site to site and facility to facility. DTSC will work with U.S. EPA to ensure that these increased risks are addressed when cleanups are conducted at federal Superfund sites in California. DTSC will also work with U.S. EPA and local authorities to protect facilities that generate, store and transport toxic chemicals.

8. Given the increased threat climate change poses to Superfund sites, does it make sense for President Trump and EPA Administrator Pruitt to be proposing large cuts to the Superfund program's budget?

CalEPA supports a strong federal commitment to maintaining or increasing funding for cleanups of federal Superfund sites in California. The threat of federal funding cuts raises concerns about U.S. EPA's ability to fulfill its obligation to cleanup these contaminated sites in a timely manner. The State cannot fill the gap because our resources are committed to on-going cleanups at state toxic waste sites.

9. When a Superfund or other industrial site does result in ground and/or water contamination, what are the costs this imposes on the surrounding communities – the costs to businesses, municipalities, households, agriculture, fishing, and the outdoor recreation industry?

This question correctly identifies that the costs associated with a Superfund site go far beyond the bare expense of cleaning the site. These areas are taken out of productive use so long as they are contaminated and may deprive the community of land needed for residential, commercial or industrial use. Further, if pollution from a toxic waste site is released into the environment, contaminating local air, adjacent land and groundwater or other water resources, public health and safety can be harmed, with attendant social costs. Contaminating drinking water supplies forces water wells offline and may increase basic water service costs by requiring the community to find alternative sources of water or install expensive treatment systems. Homeowners can experience reductions in the value of their homes due to concerns, real and perceived, about the risks posed by living near a Superfund site. And, in severe cases, residents may be permanently or temporarily displaced due to contamination or remediation activities. Local commerce, businesses and workers may be similarly impacted. Finally, as the question suggests, Superfund sites can have devastating effects on local fishing and recreation. Both activities may have to be curtailed through restrictions or prohibitions placed on fish consumption or recreation to protect public health in areas affected by contamination.

10. What are the dangers climate change poses to coastal sites?

As it relates to Superfund sites along our coastal shoreline, climate change poses threats from rising sea levels, greater storm surges and increased risks of flooding. These impacts may inundate contaminated sites in coastal areas, which could damage cleanups systems, potentially release contaminants into surrounding areas, and increase the risk of human and ecological exposures to contaminants. In areas where climate change's impacts accelerate erosion, protective physical barriers at sites can erode, increasing the risk that containment systems will fail, which could result in exposure to contamination and harm to human health and environmental quality.

These dangers are of special concern in California. In 2014, nearly 75 percent of California's population lived in coastal counties and along the State's iconic 1,100 miles of mainland coastline. And economically, the ocean and coast contributed \$41.1 billion to the state's GDP, provided \$19.3 billion in wages and salaries, and supplied 502,073 jobs in 2013.

In addition to the dangers of climate change for Superfund sites, climate change impacts, including sea-level rise and ocean acidification are already affecting coastal communities, natural resources, and the economy of California. Sea-level rise threatens homes, roads, public services and critical infrastructure. It will result in the loss of coastal habitats and public access, in increased exposure to toxic materials and in the destruction of cultural sites; it will also disproportionately impact communities in the state that are already overburdened by environmental or social problems. These impacts will be exacerbated by increased storm frequency and severity associated with a changing climate. (E.g., Kildow, Judith, Colgan, Charles, and Johnston, Pat. "Coastal and Ocean Economic Summaries of the Coastal States - Update 2016" *National Ocean Economics Program, Center for the Blue Economy, Middlebury Institute of International Studies at Monterey*. 2016. <http://centerfortheblueeconomy.org/2016-noep-report>.)

Finally, ocean acidification, an increase in the acidity of the ocean caused by rising levels of carbon dioxide in the atmosphere, is currently affecting marine ecosystems and fisheries, and is expected to worsen over time. Ocean acidification inhibits the ability of marine organisms to form shells and can also affect growth, survival and behavior, resulting in significant ecological and economic consequences for natural and human communities.



Edmund G. Brown Jr.
Governor
Matthew Rodriguez
Secretary for Environmental Protection

September 2015

FACT SHEET: Protecting Public Health from Home and Building Fire Ash

All persons accessing burned structures should be aware of the hazards associated with those sites. Cleanup efforts may expose you to ash, soot, and fire decomposition products that may cause irritation and other health effects.

Ash from burned structures is generally more hazardous than forest ash. Fire ash contains tiny particles (dust, dirt, soot) that can be deposited on indoor and outdoor surfaces and can be inhaled if the ash becomes airborne. Although the ash is not classified as a hazardous waste, it may contain traces of hazardous chemicals such as metals like lead, cadmium, nickel and arsenic; asbestos from older homes or other buildings; perfluorochemicals (from degradation of non-stick cookware, for example); flame retardants; and caustic materials. For these reasons, it is advisable to be cautious and avoid exposure to the ash.

Health Effects of Ash: Fire ash may be irritating to the skin, nose, and throat, and may cause coughing. Fine particles can be inhaled deeply into lungs and may aggravate asthma and make it difficult to breathe. If the ash contains asbestos, nickel, arsenic or cadmium, then exposure is a particular concern because these substances can cause cancer. Because the substances in the ash vary, it is best to be cautious.

Sensitive People: People with asthma or other lung diseases, pregnant women, and the elderly should exercise special caution because they may be more susceptible to health effects from the ash.

Children: Do not allow children to play in ash. Wash and clean all children's toys before using. Children should not be in the vicinity while cleanup is in progress. Even if you are careful, it is easy to stir up ash that may contain hazardous substances. In addition, the exploratory behavior of children may result in direct contact with contaminated materials.

Pets: Clean ash off house pets and other domesticated animals. Do not allow pets on contaminated sites.

AVOID direct contact with ash. If you get ash on your skin, in your eyes, or in your mouth, wash it off as soon as you can.

Air Resources Board • Department of Pesticide Regulation • Department of Resources Recycling and Recovery • Department of Toxic Substances Control
Office of Environmental Health Hazard Assessment • State Water Resources Control Board • Regional Water Quality Control Boards
1001 I Street, Sacramento, CA 95814 • P.O. Box 2815, Sacramento, CA 95812 • (916) 323-2514 • www.calepa.ca.gov



Clothing: Wear gloves, long-sleeved shirts, and long pants to avoid skin contact. Goggles are also recommended. Contact with wet ash may cause chemical burns or irritation on skin. Change your shoes and clothing prior to leaving the site to avoid tracking ash offsite, into your car, or other places.

Masks: When exposure to dust or ash cannot be avoided, use a well-fitted NIOSH-certified air-purifying respirator mask, such as you can obtain at a hardware store. A mask rated N-95 is much more effective than simpler dust or surgical masks in blocking particles from ash. Although smaller sized masks may appear to fit a child's face, none of the manufacturers recommend their use in children. If your child is in an area that warrants wearing a mask, you should remove them to an environment with cleaner air. Persons with heart or lung disease should consult their physician before using a mask during post-fire cleanup.

Cleanup: Avoid disturbing or sifting through the ash as much as possible. Do not engage in activities that kick up ash particles and associated chemicals into the air. Gently sweep indoor and outdoor hard surfaces followed by wet mopping. A damp cloth or wet mop may be used on lightly dusted areas. When wetting down ash, use as little water as possible.

Vacuum: Use a high-efficiency particulate air (HEPA)-type vacuum to clean dust-contaminated surfaces. Avoid using a typical household vacuum which will re-suspend the collected dust into the air. Shop vacuums and other common vacuum cleaners do not filter out small particles, but rather blow such particles out the exhaust into the air where they can be breathed. Do not use leaf blowers or take other actions that will put ash into the air.

Food and Water: Wash any home-grown fruits or vegetables from trees or gardens before eating. Avoid bringing other food to the site or eating at the affected site, or keep the food in a sealed container to prevent contamination and wash your hands well before eating. Consult with your drinking water provider to ensure the water is safe to drink.

Disposal: Collected ash may be disposed of in the regular trash. Ash may be stored in plastic bags or other containers that will prevent it from being disturbed. If you suspect hazardous waste including asbestos is present, contact your local hazardous waste authorities regarding appropriate disposal. Avoid washing ash into storm drains.

For further information, see: www.cdc.gov/niosh/topics/firefighting/

Contact: emergency@oehha.ca.gov



OPERATIONAL GUIDANCE:

DEBRIS REMOVAL AT WILDLAND URBAN INTERFACE FIRES

UPDATED: NOVEMBER 16, 2017

The purpose of this debris removal guidance is to assist field operational decisions regarding debris removal. Working around concrete structures in areas impacted by ash and debris requires significant careful and deliberate effort with equipment and hand labor to remove contaminants or the contractor risks leaving contaminants behind. There is an additional risk that hard scape and other aspects of the site could be damaged by the removal efforts. Generally, all materials in areas directly impacted by the fire and subsequent ash and debris shall be removed.

As with all construction work, many field decisions must be made by qualified individuals to complete debris removal. This guidance is designed to operate in accordance with the Standardized Emergency Management System (SEMS) by using the Incident Command System (ICS) for field response. All field personnel will use this Debris Removal Guidance to ensure consistent safe practices are followed. Common issues are addressed below, if questions arise about a concrete structure/wall/pad in the field please refer to the next level of command for further guidance. Field training is always available to assist in decision making. CalRecycle utilizes the following concrete operating procedures relative to situations encountered during debris removal from residences following catastrophic wild fires.

OVERVIEW: A CLEAN LOT REQUIRES REMOVAL OF THE STRUCTURAL ASH FOOTPRINT

The average house fire burns at a temperature of about 1,100 degrees Fahrenheit (°F) but can reach in upwards of 1,300°F depending on certain conditions such as wind and building construction. The longer concrete is exposed to heat, such as that generated by a large-scale wildland, urban interface fire where little to no structural firefighting suppression occurs, the more damage the concrete sustains.

The way concrete responds to high-temperatures is well established. Crucial factors in assessing the damage to concrete are the rate of heating and the duration of exposure to high-temperatures. At slightly above 212°F, free water in concrete begins to evaporate rapidly. When concrete reaches about 350°F, a significant amount chemically bound water is released. When concrete temperatures reach above 750°F, the residual compressive strength typically drops by 50 to 60% and the concrete is considered fully damaged.

Therefore, it is important to remove all concrete or asphalt within the structural ash footprint. As a general removal guideline, all concrete under and within five feet from structural ash is used. All concrete left in place will be made safe by cutting rebar flush or fencing retaining walls and/or pools. While cutting or breaking concrete the contractor shall wear personal protective equipment (PPE), including eye and respiratory protection.

THE DEBRIS THAT MUST BE REMOVED

Concrete Foundations and Slabs

The California Department of Resources Recycling and Recovery's (CalRecycle) considers all structural foundations to be destroyed by the heat from an unsuppressed structure fire. These slabs and foundations are no longer structurally sound and now considered debris. Additionally, with the known amounts of carcinogens, heavy metals, and asbestos, structural slabs will need to be removed to assess the former building sites for residual ash contamination. Should the owner wish to keep a structural foundation, they will not be part of the public program and will instead need to contract with a private contractor to remove debris in accordance with local government requirements.

Required removal:

- Foundations for homes, cabins, mobile home slabs, barns, sheds, garages, other living structures, and any concrete pad that was designed to hold a structural load. If the slab or pad was used to store vehicles or other commercial materials such as tires, building products, roofing tiles, etc., the impacted slab must be removed.

Exceptions:

- Well slabs or pads. To protect the well casing and the integrity of the well, remove only ash and debris and leave concrete pad around the well casing. Protect well with temporary construction fencing. Wear PPE.
- Former slabs or pads that only held firewood or other inert material will be left in place. These slabs may be from a previous structure that was removed and/or not damaged by a fire.

Footings

Footings under foundations will be removed.

Exception:

- For structural support below the impacted slab or footing see the direction in the following section.

Piers, Pilings, Or Horizontal Beams Under the Slab

Piers, pilings, or horizontal structural piers under the slab will not be removed. Contractor should remove the slab to grade and cut rebar and other metal supports to the base of the concrete/steel piers/pilings.

Driveways

Undamaged driveways shall be preserved to the extent practicable to provide a stabilized construction entrance for debris removal and/or reconstruction.

Exception:

- If the driveway is damaged or contaminated (e.g., burned vehicles), or damaged by debris removal equipment or haul trucks to the extent that it is unsafe, the driveway will be removed to the extent necessary.

Chimneys

Chimneys will be removed because they present a health and safety hazard due to their instability. Also, chimneys contain dangerous materials such as asbestos. (See asbestos survey requirements.)

Exception:

- Patio fireplaces will not be removed unless deemed unsafe due to fire related damage.

Patios or Other Backyard Features (Such as Waterfalls, Sports Courts, Etc.)

Patios and other backyard features will be preserved to the extent possible unless they present a hazard from fire related damage.

Pools

Pools will not be removed or drained. The contractor will remove debris in pools to the extent practicable, place fencing completely around the pool where feasible, and notify the homeowner.

Exception:

- Pools may be drained if necessary for the safe removal of ash and debris. To prevent unnecessary damage to the pool, the Contractor shall utilize an appropriately licensed swimming pool contractor (C-53) to drain the pool. Removed water shall be applied to the ash/debris footprint as dust control.

Walkways and Private Sidewalks

Walkways and private sidewalks will not be removed.

Exception:

- Remove if necessary for equipment access, if damaged by equipment, if covered in ash and debris, or if condition makes it unsafe to walk on.

Retaining Walls

Retaining walls will not be removed. If connected to slab, make a cut with a concrete saw approximately 24 inches away from the wall. Notify owner that retaining wall is being left in place for erosion control and that the incident management team has not evaluated the wall for structural integrity. Inform the local government the wall shall be evaluated by a licensed engineer before reusing.

Exception:

- If handwork cannot successfully remove the ash or debris from around or on the wall or the wall is deemed unsafe and may collapse, remove wall and cut earthen slope back to 2:1 (H:V).

Basements and Cellars

Basements and cellars will be removed and fenced. The contractor will cut the slopes back to 2:1 (H:V) and fenced with temporary construction fencing.

Vehicles and Boats

Vehicles and boats will be removed from the residential property.

SOIL GRADING AND SAMPLING

Soil Grading:

After ash/debris removal and prior to confirmation sampling remove 3 to 6 inches of soil from the impacted area after the burn ash and debris is removed to a level of visually clean. If any of the confirmation sampling results exceed cleanup goals, the parcel will be further excavated at the direction


of the Operations Section Chief until additional confirmation soil samples have met the established cleanup goals.

Confirmation Sampling:

Confirmation sampling shall be conducted by an appropriately licensed professional after fire-related debris has been removed from a property. Representative surface soil samples should be collected from a depth of 0-3 inches and analyzed to determine compliance with cleanup goals established by the County other government agencies. For informational purposes, CalRecycle's typical operations plan sampling frequency are included here. The total number of samples to be collected is based on estimated square footage of ash footprint as follows:

Estimated Square Footage of Ash Footprint (Decision Unit)	Number of 5-Point Aliquots
0-100 square feet	1
101-1,000 square feet	2
1,001-1,500 square feet	3
1,501-2,000 square feet	4
2,001-5,000 square feet	5
>5,000 square feet	Must consult with local environmental health officials.

All confirmation samples should be collected from a depth of 0-3 inches using a dedicated 4-ounce plastic scoop and be placed in 8-ounce jars. Samples should be shipped to an approved laboratory for analysis by Title 22 Metals for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc by EPA Method 6020, and mercury by EPA Method 7471A.



Who's ON MY PROPERTY?

Valley Fire Debris Cleanup

Did you sign a Right of Entry form to have your property cleaned by the County of Lake's program with the State of California?
 If so, this checklist explains what you can expect during the debris cleanup.

You may see many different cleanup teams on your property over the next weeks and months. These teams each have a specific job, but they all have the same goal: **to leave your property clean and safe.**

This is an outline of who you will see on your property, what they will be doing, and in what order they will arrive. You should always be able to match the agency or organization logo below to at least one member of the team, usually the team leader. CalRecycle and contractors are employing a local workforce, so you may see someone you know.

STEPS TO THE CLEANUP

STEP 1: HOUSEHOLD HAZARDOUS WASTE REMOVAL

WHO: U.S. Environmental Protection Agency

WHAT: Clearing homes of any remaining household hazardous waste (e.g., propane tanks, compressed gas cylinders, solvents).

STEP 2: ASBESTOS INSPECTION AND REMOVAL

WHO: CalRecycle and contractor Network Environmental System (NES)

WHAT: Testing properties for asbestos and removal large obvious chunks of asbestos material.

STEP 3: SITE DOCUMENTATION

WHO: CalRecycle and contractor Arcadis

WHAT: Documenting the state of the property before removal of debris, including details like property size, units in an apartment building, number of cars, etc.

STEP 4: ASH AND DEBRIS CLEANUP

WHO: CalRecycle and contractor Pacific States Environmental (PSE)

WHAT: Removal of all debris and ash. Scraping clean of the lot. **You will be contacted 24-48 hours before this step occurs.**

STEP 5: HAZARDOUS TREE REMOVAL


WHO: CalRecycle and contractor (To Be Determined)


WHAT: Removal of any hazardous trees on the property.


STEP 6: EROSION CONTROL


WHO: CalRecycle and contractor (To Be Determined)


WHAT: Erosion control measures to be determined property by property











FOR QUESTIONS REGARDING THE DEBRIS CLEANUP, CALL: 707-987-1958



Department of
Toxic Substances
Control

*Preventing
environmental
damage from
hazardous waste,
and restoring
contaminated
sites for all
Californians.*



State of California



California
Environmental
Protection Agency

Emergency Guidance on Wildfires #1

Handling Ash, Debris and other Hazardous Materials from Burned Structures

Ash, charred debris, and other contaminated materials from burned structures may be hazardous wastes. To minimize exposure to emergency personnel, the general public, and workers involved with restoration efforts, and to minimize dispersion to the air and run-off to surrounding surface waters, the ash and contaminated debris should be cleaned up and contained as quickly as possible. Actions taken to immediately mitigate and contain and control hazardous waste releases are exempt from hazardous waste permit requirements [22 CCR 66270.1(c)(3)(A)] after the Governor has declared the county in a State of Emergency. This document provides general guidance for the management of these materials. This guidance applies only to the emergency actions taken to clean up, contain and dispose of the ash and debris from the burned structures. This guidance does not apply to long-term restoration activities.

During emergency cleanup efforts, restoration workers must evaluate readily identifiable hazardous wastes and determine if they can be safely segregated and managed separately from the ash and debris. If hazardous material can not be separated safely, it is permissible to contain and dispose of these materials with the ash and contaminated debris.

Uncontaminated and unburned hazardous materials (i.e., hazardous materials with smoke damage from partially burned structures) should not be commingled with ash and debris. These materials should be segregated and directed to local hazardous waste collection programs. See DTSC emergency guidance on the collection of hazardous wastes from burned areas.

Ash and Debris from Residential and Commercial Structures:

Ash and contaminated debris from residential structures should be contained and disposed of at a municipal solid waste landfill (class three) under the direction of the local solid waste enforcement agency. If feasible, disposal to a lined landfill is environmentally preferable.

Ash and contaminated debris from commercial structures must also be contained and disposed of as quickly as possible to minimize exposure. In addition, it is more likely that hazardous materials and hazardous wastes will be found and need to be segregated from the ash and contaminated debris at commercial structures. Generally, ash and contaminated debris from these structures may be handled in the same manner as ash from residential structures.



Industrial-Type Businesses Structures

Ash and contaminated debris from these structures should be cleaned up and contained as quickly as possible. Debris from this type of business is more likely to contain hazardous waste residues not typically found in the municipal solid waste stream; and therefore, disposal to a municipal solid waste landfill (class three) may not be appropriate for these materials. Your local certified hazardous materials program and/or DTSC should be contacted if assistance is needed with ash, debris or site evaluation from such premises prior to containment.

Segregated Wastes:

Segregated hazardous wastes should be transferred to local household hazardous waste collection programs as soon as feasible. Most businesses affected by the fires will have lost all records that can be used to establish monthly generation rates. Therefore, unless the business was obviously not a small quantity commercial source, DTSC recommends that local household hazardous waste collection programs accept hazardous wastes from affected commercial sources to facilitate the safe removal of the hazardous materials.

Examples of Segregated Wastes:

The following materials should be separated to ensure safe handling and disposal of ash and debris:

- Compressed gas cylinders and propane cylinders
- Gasoline cans (and other fuel containers)

- Bulk chemicals & chemical containers
- Lead acid batteries
- Transformers
- Paints and thinners
- Bulk pesticides
- Bulk fertilizers
- Munitions
- Laboratory equipment
- Electrical Transformers
- Air conditioners
- Large metal appliances, lawn mowers, tractors, chainsaws, ATVs, etc.
- Automobiles

This guidance is general in nature; specific situations may require additional considerations. If specific questions arise, please contact DTSC.

DTSC Contact Information:

Regulatory Assistance Officer

(800) -72TOXIC

RAO@dtsc.ca.gov

Updated July 12, 2017



Department of
Toxic Substances
Control

*Preventing
environmental
damage from
hazardous waste,
and restoring
contaminated
sites for all
Californians.*



State of California



California
Environmental
Protection Agency

Emergency Guidance on Wildfires #2

Management Options for Expedited Collection of Hazardous Wastes from Burned Areas

Given the extent of the fire disaster in your area and the need for rapid recovery, the Department of Toxic Substances Control (DTSC) has prepared this fact sheet to guide persons in the impacted areas in managing hazardous waste(s) separated from fire ash and debris.

Types of Hazardous Waste Expected: This fact sheet is intended to guide the reader in management of hazardous wastes separated from ash and other fire debris in the fire emergency areas. See the fact sheet entitled "DTSC Emergency Guidance on Wildfires #1, Handling Ash, Debris and other Hazardous Materials from Burned Structures", on the DTSC Internet site www.dtsc.ca.gov. In cases when hazardous materials have been burned to the point that they are indistinguishable from other burned materials, all of the burned matter should be managed as general fire debris. Likewise, burned hazardous wastes that cannot be safely removed and separated should be managed in the same manner as other non-hazardous ash and fire debris.

The following information is for hazardous wastes which are distinguishable and can be safely separated from ash and other fire debris.

Residences: Household hazardous wastes will be found in conditions ranging from fully burned to untouched. Examples of these wastes include:

- Cathode ray tubes "CRTs" (picture tubes) from televisions and computer monitors and other electronic devices
- Paints, solvents, non-empty aerosol cans
- Pesticides, fertilizers, and pool chemicals
- Household batteries
- Automotive fluids: Used and unused oil, unburned fuels, anti-freeze, lead acid batteries
- Asbestos siding, pipe insulation, and tiles
- Lead-based paint and/or treated wood debris



- Mercury-containing thermometers, gauges, and switches
- Compressed gas cylinders: Propane and LPG, oxygen, welding gases
- Ammunition and ammunition reloading supplies

Small businesses: Many small businesses are likely to have hazardous waste. Condition of the wastes will range from fully combusted to virtually undamaged. Potential hazardous materials that may be associated with various businesses include:

- Automotive service and supply businesses: Fluids including used and new oil, antifreeze, solvents, paints and thinners; lead-acid storage batteries.
- Pool chemical supply: Muriatic acid, oxidizers, chelating agents.
- Hardware and Home and Garden Supply: Paints, paint thinners, adhesives and strippers, batteries, solvents, cleaning products, pool chemicals, pesticides and fertilizers.
- General Businesses: CRTs from computers and security cameras, battery backup units, small electronic devices.
- Sporting goods: Ammunition, reloading supplies.

Industrial Businesses: Larger businesses that have been impacted must be examined on an individual basis. For further information call the Regulatory Assistance Officer at (800) 72TOXIC.

General Waste Management: While removing debris, home and business owners should remove white goods (appliances), automobile bodies, and other recyclable materials to the extent that is practical in order to avoid filling disposal sites with large objects that can be recycled as scrap metal. Likewise, concrete and other inorganic wastes may be segregated and recycled as aggregate for new concrete. Contact your local solid waste agency for further information.

Contractor Duties: Firms clearing land under contract to homeowners or businesses have the same responsibilities for proper waste management under the law as the home and business owners. This fact sheet also applies to contractors.

Identification Number: A hazardous waste facility identification number will be issued and is to be used by household collection agencies and other government agencies (and their contractors) for shipping hazardous wastes generated in the disaster.

2. Management Options for Hazardous Wastes Removed from Debris:

Indistinguishable Hazardous Materials and Materials that cannot be Safely Separated from Other Ash and Fire Debris at Residential Properties and Small Businesses:

These materials should be managed along with the ash and other debris. They may be taken to a municipal solid waste landfill. Care should be taken to avoid generation of dust by misting and covering loads or using bins with lids. For further information, see the fact sheet entitled "DTSC Emergency Guidance on Wildfires #1, Ash, Debris and other Hazardous Materials from Burned Structures", on the DTSC Internet site www.dtsc.ca.gov.

Emergency Situations: Unstable situations may be addressed without any further authorization by removal or treatment of hazardous waste under the emergency response exemption from the usual hazardous waste permitting requirements (22 CCR 66270.1(c)(3)(A)). Under this exemption, released wastes may be cleaned up, wastes in damaged containers or tanks may be re-packaged, and wastes that pose an imminent and substantial risk may be treated to remove the immediate hazard. Examples include, but are not limited to, pumping and repackaging of wastes from fire damaged tanks and neutralization of acids or alkalis contained in damaged tanks and containers. In emergencies such as the circumstances described here, no permit or other authorization is needed to take care of these wastes. There is also no notification required in these instances.

Universal Waste: Universal wastes expected to be found include non-automotive batteries, CRTs, fluorescent and streetlight-type lamps, mercury thermostats, and small electronic devices.

No authorization is needed to collect, transport, and accumulate universal wastes. Household hazardous waste collection agencies may collect these materials and may set up collection routes and locations without any additional authorization. The household hazardous waste collection agency is acting as a "small quantity handler of universal waste" (22, CCR, 66273.10 et seq.). To dispose of universal wastes, call the appropriate household hazardous waste agency. (See below)

Household Hazardous Waste: Household hazardous wastes are collected and man-

aged by local household hazardous waste agencies.

Authorization for household hazardous waste collections: Both permanent and temporary household hazardous waste collection facilities are authorized by the appropriate Certified Unified Program Agency (CUPA), and can be authorized on an expedited basis if there is no previously authorized household hazardous waste collection facility in a particular area.

Special Household Hazardous Waste Programs: Household hazardous waste agencies can conduct mobile, door to door, and curbside collections in the affected areas upon issuance of a variance by DTSC from hazardous waste transporter and facility requirements. DTSC will expedite variance approvals for affected areas as needed and as appropriate. For variances please contact Paris Greenlee at (916) 323-2274.

Situation after hours that must be handled immediately, call the CUPA if they have a 24-hour number or contact the State Office of Emergency Services (OES) Warning Center at 1(800) 852-7550 for 24 hour response; the OES Warning Center will pass the information on to DTSC as quickly as possible.

Small Business Hazardous Waste: State law allows small businesses to bring hazardous waste to household hazardous waste collection facilities as "small quantity commercial sources". The wastes may be self-transported in small quantities, transported by a registered hazardous waste hauler, or transported by a collection agency that has received a variance from the hazardous waste transportation requirements. For a local agency to obtain such a variance, see "Special Household Hazardous Waste Programs" above.

Industrial Hazardous Waste:

Industrial generators of hazardous waste have at least 90 days to store hazardous waste onsite in tanks or containers prior to offsite shipment. Extensions are possible – contact the appropriate CUPA to request an extension to the allowed accumulation time. Imminent hazards may be addressed without authorization under the emergency response exemption– see "Emergency Situations" above.

Emergency Permits: If special accumulation, treatment, or storage facilities must be established to respond to wastes from industrial businesses, DTSC is authorized to issue emergency hazardous waste facility permits over the telephone followed by the subsequent formal authorization process (22 CCR, 66270.61). For further information, please call Michael Choe at (916) 255-3635 from 8:00am to 5:00pm. If you have an emergency situation after hours, call the OES Warning Center at (800) 852-7550 for 24 hour response; the warning center will pass the information on to DTSC as quickly as possible.

DTSC Emergency Response Resources: Upon request by a state or local agency, DTSC may dispatch emergency response contractors to address imminent hazards. Local agencies should follow procedures in place for requesting emergency assistance in disaster situations, e.g. the county must contact the OES Regional Emergency Operations Center and request assistance.

Requests for Assistance: In general, all requests for assistance should be made through the County to the OES REOC to ensure that reimbursement is available for the activity. These requests will be forwarded to the appropriate State agency.

3. Contacts: Following are contacts for hazardous waste agencies:**DTSC Contact Information:**

Adam Palmer (916) 255-6572
apalmer@dtsc.ca.gov

Regulatory Assistance Officer

(800)72TOXIC

RAO@dtsc.ca.gov

Certified Unified Program Agencies:

<http://www.calepa.ca.gov/CUPA/CUPAMail.htm>

California Office of Emergency Services

Warning Center: (800) 852-7550

Senator ROUNDS. Thank you, Secretary Rodriguez.

Normally, we take about 5 minutes apiece for questions on behalf of all of us Senators. Today, as usual for the United States Senator, time management is not the best. They have notified us that we will be having votes very shortly.

I would like to complete this Subcommittee discussion before we leave for the votes. There is the announcement.

I want to be specific with regard to the Superfund sites in particular. Mr. Shaw, looking at the fact that you had a number of sites that were impacted by the hurricane, are you aware of any releases from any of the Superfund sites within your jurisdiction due to the impact of the hurricanes?

Mr. SHAW. We have two sites that likely had or may have had a release. One is a State Superfund site. It is not obvious where the source of that was. There was a sheen seen on the water days after the storm. It appears to have been a minor release, but we have contained that and made sure it is not there.

There was some release there. No impacts have been noted from that, but there was a release at that site.

The other is the San Jacinto waste pits where dioxin is stored. In fact, the EPA recently released their decision for final disposition of that site. The protective cap was removed so we know that the material was exposed.

What we have seen from the testing is it is difficult to determine how much, if any, of that material was actually released, but it is possible that those releases did occur. I know the testing that occurred subsequent to repairing the cap shows the concentrations, both in the sediment and the water, are similar to what they were pre-storm, but that section of the river has a fair amount of contamination from dioxin from many sources over many years.

Senator ROUNDS. Mr. Hester indicated several statutory changes that might be very helpful, basically some common sense approaches, making some changes in advance, doing some analysis in advance, doing some pre-planning and so forth.

Your full remarks, without objection, will be included in the record for this Subcommittee hearing.

In listening to those remarks, do you believe some of those recommendations Mr. Hester made would have been beneficial had they been implemented beforehand?

Mr. SHAW. I think it is very possible that some of those suggestions could be helpful. Some are done already, so I think the question would be trying to make sure we encourage and incentivize without becoming too proscriptive so that the one size fits all approach does not get in the way of solving those problems.

I mentioned very briefly in my testimony, for example, that prior to the storm, we try to make sure those things that systematically are not protected, barrels, drums, and things that have to be out where they may be exposed to the hurricane, that you secure those.

I think it makes sense a good engineering design for that solution take into account that resiliency. I think there is potentially some benefit to pointing that out, as he discussed, where you look at that and make sure we encourage and incentivize that lessons learned approach, how do we make sure we are doing things in advance that make it easier to protect it should a natural event occur.

Senator ROUNDS. Mr. Hester, I appreciated the comments you made and the suggestions you indicated. They will be carefully reviewed.

I believe Mr. Shaw makes a good point: one size does not fit all. Can you elaborate a bit on your thoughts in terms of his comments just now?

Mr. HESTER. Absolutely. First, I want to acknowledge that my experience has been that EPA staff, especially on the scene coordinators, do an extraordinary job during incredibly tight time pressure when a hurricane is approaching.

I have seen them not only secure tanks and containers; we have built emergency berms on the spot with bulldozers to make sure sites are protected and pumped down wastewater lagoons to the point they can handle large influxes of water. All of those are done on a very fast turnaround basis and very much on an ad hoc basis.

My endorsement would be please keep doing that, but I also think there might be some good policy to have that done in advance in terms of making the remedies selected for sites better able to accommodate those kinds of actions when there is an expectation we will have these kinds of extreme weather. I would also suggest that, to a certain extent, you can pre-stage and have the resources available and identified to be able to quickly do that if you need to.

Senator ROUNDS. Thank you.

Mr. Rodriguez, I am going to allow my counterpart, Senator Harris, to do most of the questions for you, but I think right now, with all of the activity going on in California, the fires you have had and so forth, it brings to light the challenges that are out there and our need for a constant oversight of the different areas. The recommendations you make I think are very, very relevant in this particular case.

I thank you for being here today as well.

Senator Harris.

Senator HARRIS. Thank you.

For Secretary Rodriguez, on October 14 I had the opportunity to survey the damage of the wildfires in California first hand. There was still minimal containment while I was there. As you know, eventually 245,000 acres in northern California burned. I previously mentioned the lives and structures lost.

The Fourth National Climate Assessment, a Federal Government report, recently stated that we have experienced an increase in large wildfires since 1980 and that as the climate warms, the number will probably continue exponentially.

Climate change, as I think you would agree, acts as a force multiplier in extreme weather conditions. I think it important this Committee understands how toxic Superfund sites are impacted by these disasters as we have discussed. To that end, my colleagues and I have submitted a letter to the Government Accountability Office requesting a report on how the EPA is taking climate change impacts into account when assessing Superfund sites.

What do you believe are some of the concerns that California EPA has regarding how climate change may impact Superfund and hazardous waste sites?

Mr. RODRIGUEZ. There are a number of concerns that we have. Obviously these are very, very dangerous sites. As you noted in your opening statement, they are very dangerous sites because of the chemicals often still on the site, and they pose a threat, if they are not controlled, to the surrounding communities.

We have done a lot of work in California identifying what we call disadvantaged communities in California, communities that are largely poor and already dealing with a large number of environmental burdens and what we can do to help those communities.

One of the things we can do to help those communities is to deal with these sites and make sure they are properly regulated. In order to do that, we have been working very closely with these communities. The discussion we had with the Bay area community is an example of that.

We try to work with the communities to understand what Superfund sites are in those areas, understand the threats that we see being posed to those areas in the future because of changing climate and changing sea level, and work with them to understand what we can do at the State, Federal, and local levels to respond to those issues.

I will say we have a number of guidelines in the works right now that set out standards we and the community can be using to help plan in the future to both prepare the Superfund sites and also help the communities around these sites.

We also have an assessment that will be coming out next year that will talk about the extent of the problems in some of these communities. We also have an adaptation guideline that is going to be coming out next year that will talk about how we can prepare our communities to respond to floods, natural disasters, and fires. We have also updated our guidelines for planning in the States to deal with fire hazards.

We want to take some of those lessons we are learning in those situations and work with the USEPA to help them appreciate what we are doing at the local level and include them in the planning process, because we think that is the key.

We are looking at these issues and standards we think can be applied in California. We need to have the buy in of the Federal Government as we work collaboratively to deal with the issues there.

I will note it is helpful to have a Federal Government we can work with on climate issues just generally. We look forward to working with the Federal Government to deal with the changes in climate and work on programs to prevent climate change from occurring.

Senator HARRIS. How are you incorporating the fact of climate change into the reporting and planning you have described?

Mr. RODRIGUEZ. It will be showing up in our land planning in terms of resiliency. As you well know, it will be looked at as we go through our elaborate sea growth planning process. We will be looking at how to incorporate steps to protect those Superfund sites from changes that might occur as we can identify they are in an area where there is a fire hazard or a hazard from sea level rise.

Are there additional protections we need to build into that project in order to make sure they are not susceptible to those changes? We need to take a long term view.

As Professor Hester mentioned, for example, through the Department of Toxic Substances' control process, every 5 years they will be reviewing the permits that are out there to make sure they are up to date and we are taking into account any changes that have occurred, circumstances in the preceding 5 years, and whether we need to do more in order to protect those areas.

Senator HARRIS. Thank you.

Senator ROUNDS. Senator Booker.

Senator BOOKER. Thank you very much, Mr. Chairman.

This is an issue I have been talking about since I first came here. In my opinion, we are in a state of crisis with a lack of urgency to address that crisis.

Across the country, we have unrelenting, dangerous Superfund sites sitting in our neighborhoods close to populations that are literally poisoning our residents. For me, this is unacceptable.

I am going to today again introduce the Superfund Polluter Pays Act, with which I am sure you are familiar. The bill would reinstate the excise tax on polluting industries to provide funding for Superfund cleanups.

When this excise tax was last reauthorized, it was passed by the Senate 86-13. It passed and was signed into law by President Ronald Reagan. The bill was needed because funding for Superfund sites continued to decrease. It is now at its lowest point in 25 years. In fact, if adjusted for inflation, we are currently funding the Superfund Program at 40 percent of its 1987 levels.

The problem with that is now we have longitudinal data. We know what these sites are doing to the surrounding populations. I know this because New Jersey has more Superfund sites than any other State, and it is more densely populated than any other State.

As you know and I am sure you have discussed in this hearing, nationwide 11 million Americans live within a mile of a Superfund site; 3 million to 4 million of these people are children. We now factually know, because of longitudinal data, babies born within 1 mile of a Superfund site, prior to the site cleanups, have a 20 percent higher rate of birth defects—a 20 percent higher rate of birth defects.

We also know that these Superfund sites are disproportionately in communities of color, indigenous communities, and low income communities. When we call this environmental injustice, it is painful to me that the folks being harmed by this are disproportionately seeing themselves exposed to hazardous waste and pollution in this data I am showing at 20 percent higher rates of birth defects.

In one example, a recent EPA and HUD analysis showed that the majority of Superfund sites are located within 1 mile of HUD funded low income housing. As a guy who lives next to HUD funded low income housing that has two Superfund sites in my community, I live in a neighborhood where the median income is \$14,000 per household and as thousands of my residents who live next to and near these Superfund sites, we have to do something about this.

The first question, Mr. Rodriguez, is do you support reinstating the excise tax on polluting industries like Ronald Reagan signed into law, like Senator Mitch McConnell and many of my other colleagues voted for?

Do you believe we should reinstate this excise tax to clean up Superfund sites, especially knowing Senator Boxer and I questioned whether the net number of Superfund sites in the United States of America is increasing or decreasing, it has been increasing in recent years. Do you believe we should reinstate this excise tax?

Mr. RODRIGUEZ. I am not sure as we sit here whether the Governor has taken a position on that specific excise tax, but I will say certainly additional funding is necessary for the program. As you mentioned, the funding for the Superfund program has gone down through the years, but the need has not gone away. In fact, the need is as great as ever. That is something we are testifying to today.

In particular, I agree with your observations concerning the communities around these Superfund sites. In many instances, in California, they are the communities least capable of responding to some of the problems themselves because they tend to be disadvantaged, low economic communities.

More needs to be done to focus funding in these areas and to help these areas. I think additional funding is certainly something that is warranted.

Senator BOOKER. The facts are this is a growing problem in our country. There are orphan sites right now but for the funding being available, we could be cleaning them up and taking millions of children out of risk's way.

I heard the conversation as I walked in a bit about climate change, but I want to press that question right now. We had 40 Superfund sites at risk of damage during Hurricane Harvey, sites that TCEQ, the Federal Government, and the responsible parties knew to be contaminated and harmful to human health.

We also knew Harvey would hit before it did, and we generally know the Gulf Coast is going to continue to face these extreme weather events. What is often less acknowledged though is the environmental injustice communities bear, this disproportionate burden when these things impact.

As my time expires, I would ask did TCEQ provide any special attention or preparation to these environmental injustice communities prior to Hurricane Harvey making landfall? What ongoing monitoring are we doing to deal with what is going to continue to happen in the United States of America, especially along the Gulf Coast and southeastern coast of the United States?

Mr. SHAW. With regard to the Superfund sites, we continued to monitor those, prepared for and monitored after the landfall where it appeared there was damage. Specifically, the San Jacinto waste pits is the one Federal Superfund site where damage occurred that had the potential for exposure.

It is a Federal lead site, so they took the lead in that doing sampling and developing a plan with the responsible parties to quickly reinsert the cap and protection on there to minimize any ongoing damage.

They followed up with fairly extensive sampling to try to determine if there were offsite impacts from that. I mentioned earlier that the results were that there was an exposure of those materials, but it appears from the sampling that took place after the cap was replaced, that the levels in the sediment and water are similar to what they were prior to the hurricane.

In a sense we may have dodged a bullet with regard to that. On the other hand, that river is also contaminated with dioxin from many sources over many years. It is not a great story from the standpoint that the problem has gone away. There is still a need to make sure we are working proactively to ensure we are being protective of that site and other sites in that area.

Senator ROUNDS. Because I think it is a valid question, I would like to have the other members to have a chance to do this, but I have to go vote. Would you consider that a QFR and allow them to answer that for the record?

Senator BOOKER. There is a reason why you are the Chair. Clearly you have a lot of wisdom. I will follow you to vote right now and appreciate their QFR.

Senator ROUNDS. Very good.

We would simply ask if each of you would respond to the Senator's question for the record. That would be greatly appreciated. Thank you.

Thank you, Senator Booker, for participating as well.

This is important. It is important that we do the oversight and learn each time we run into one of these what we can do to do a better job. I thank you all for taking the time to come and contribute. Hopefully, we do a better job in the future.

Once again, I would like to thank all of our witnesses for taking the time to be with us today. I would also like to thank my colleagues, who have attended this hearing, for their thoughts and their questions.

The record will be open for 2 weeks which brings us to Wednesday, December 20.

With that, this hearing is adjourned.

Thank you.

[Whereupon, at 3:21 p.m., the Subcommittee was adjourned.]

